

PRICE LEVEL CHANGES AND FINANCIAL ACCOUNTING MEASUREMENT

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Stanley C. W. Salvary, Canisius College

The strong hold that certain themes have on the mind of the scientist helps to explain his[her] commitment to some point of view that may in fact run exactly counter to all accepted doctrine and to the clear evidence of the senses. Of this no one has spoken more eloquently and memorably than Galileo when he commented on the fact that to accept the idea of a moving earth one must overcome the strong impression that one can "see" that the sun is really moving. [Holton 1973,59]

ABSTRACT

Debates on inflation have subsided, but the issue is not dead. Debates on this issue are as perennial as the grass; as soon as there are continuous and significant increases in the level of prices, the debates will be resumed with much vigor. Therefore, the issue has to be addressed in spite of the cessation of debate at this time. Many arguments have been presented that under conditions of changes in the general level of prices financial statements are irrelevant and uninterpretable. According to the argument for change, a real (constant) money measure of performance indicates that management is failing to maintain its physical stock of capital. The nominal money measure is considered to be the problem, since it cannot provide a constant measure of the physical quantities. Attempts have been made to alter financial accounting information in order to measure the impact of inflation on a business enterprise to assist the firm in making its investment decisions and the firm's shareholders in making their investment and consumption decisions. However, in great part these attempts have not withstood the test of relevance and interpretability. Given the functioning of a surplus-oriented money economy, the argument in support of accounting for changes in the general level of prices is examined in light of the following questions: What is it that is entrusted to management? Is it a physical stock or a financial stock of capital? Does a firm seek to accumulate a physical stock or a nominal money stock? Are the suppliers of money-capital concerned with physical flow prediction or with nominal money flow prediction? This paper simply sets out to examine the issues and reveal the fallacy of the argument in support of alteration of financial accounting information in the absence of monetary dislocation.

1 - INTRODUCTION

In periods of rising prices, financial accounting information has been criticized on the grounds that it reflects a number of dated dollars while the value of the dollar is changing. According to Hughes, Liu, and Zhang (2004, 731), “[I]nflation creates an

earnings illusion as an artifact of the mismatching of expenses based on allocations of historical costs with current revenues in determining earnings. This mismatching distorts mappings of aggregate earnings and book values into equity value such that value-relevant information is lost.” The literature is replete with criticisms and studies offering support for such criticisms (e.g., JofA [1982,90-92]; Mosich and Larsen [1982,134]; Chambers [1975a]; Niehans [1978,127]).¹ The withdrawal by the Financial Accounting Standards Board (FASB) [1986] of its requirement for inflation accounting does not signify closure on this issue. As soon as the general price level rises to what would be considered too high to be ignored, this issue will be revisited and debated. While accounting for price level changes is not on the FASB's agenda, this area of research is much too vital to be ignored/abandoned.

This paper seeks to demonstrate that, given recoverable cost as the measurement property in financial accounting [Salvary 1985;1989;1992;1997;1998a;1998b], *in the absence of monetary dislocation or any collapse of the monetary system, information, contained in financial statements which are prepared using nominal money as the measuring unit, is relevant and interpretable in an inflationary environment.* Monetary dislocation means the loss of confidence which brings about a repudiation of paper money. This condition is termed "a crisis of doubt" by Bresciani-Turroni [1937,172]. When full repudiation is reached, the economy is reduced to a barter system. Myddleton's [1984,20] argument ("What is the point of maintaining 'money capital' when the value of money is falling fast?") is related to the "crisis of doubt" and not to the normal economic circumstances observed in the UK and the US. Germany in 1918-1923 has been the classic example of monetary dislocation; there have been milder cases of the German experience in Poland, Austria, Hungary [Bresciani-Turroni 1937; Sargent 1982; Holtfrerich 1986], and, in recent times, Russia where the US dollar remains the preferred means of saving [Vasiliev 1994,134; Sachs and Woo 1994,127].² The situation in each country has to be examined to determine if the "crisis of doubt" exists. If it does exist then adjustments have to be made to correct the measuring unit - nominal money. Although the "crisis of doubt" was not present in the US, it was the German experience [Sweeney 1927;1928;1930;1931;1935] which constituted the basis for Sweeney's [1936] recommendation in the US of stabilized (real terms) accounting.

The analysis in this study leads to the conclusion that, in the absence of monetary dislocation or collapse of the monetary system, *nominal money--the measuring unit used by accountants--is not defective under general economic conditions*. This paper examines the alternative views of the manner in which price level changes occur and the means for addressing the alleged defect in financial accounting measurement. (There is no attempt to summarize the various arguments for and against the various methods advanced to deal with inflation.) In this study, what is at issue is the justification of inflation as a financial accounting measurement issue. Since one cannot talk about inflation without talking about prices and price level changes, the following section sets the stage for further analysis of the issues identified with inflation by examining the characteristics of the price system and price level changes.

2 - THE PRICE SYSTEM AND PRICE LEVEL CHANGES

In the normal operations of the economic system, owing to the proper functioning of the price system, the net effect of specific price changes of all goods and services produces change in the general level of prices. Such a change is not to be confused with a change in the general level of prices due to the *simultaneous and proportional rise* in the prices of all goods and services. A change in the general price level caused by the net effect of the realignment of specific prices is a phenomenon entirely different from that of a change in the general price level caused by the failure of the monetary system .

Historically, the debate on inflation accounting revolves around the nominal money measure employed in financial accounting. Some economists have insisted that inflation presents a financial accounting measurement problem, and some accountants have accepted it as such. Inflation is defined by these economists as the persistent increase in the general price level due to *increases in the prices of goods and services* [Trevithick and Mulvey 1975,1; Griffiths 1976,10]. In this setting, the money measure would be defective. Accountants, who subscribe to this position, proceed to find an index with which to adjust financial statements. In reality, while there exists a sustained increase in the general price level, all prices do not move in the same direction although the net effect is an increase/decrease in the general price level. In this latter situation, price changes give rise to windfall profits or losses. In general, the prices of goods and services are shaped by forces independent of the money unit; accordingly, a change in the exchange ratios (the nominal amount of money representing exchange relationships among the various

commodities) is not a defect of the measuring device [Salvary 1993,155-161,168-171;1996; 1997,94-98;1997/1998,101]. Change in the exchange ratios does produce a behavioral effect on consumption patterns of individual consumers. However, the producer (firm) is not affected in the same fashion as the consumer, because the firm is merely a conduit in a money augmentation process (e.g., profit-seeking enterprise). The producer, who is always confronted with specific price changes, attempts to maximize nominal dollars/pounds/francs (be it an attempt to maximize the hypothetical real rate of return).

Chambers [1975b, Part 1, Section 10] maintains that: "... changes in particular prices and changes in the general level of prices influence one another, [therefore] the effects of both should be brought into account. One cannot be considered in isolation from the other. Whatever the outcome, it cannot be said whether any part of the result is due solely to managerial judgements or solely to accidental unforeseeable factors. Managers may be expected to use their best judgements at all times. Only the results in aggregate will indicate with what effect firms have been able to meet the conditions through which they have passed." As per Chambers [1975b], the cause of the change in the price level does not really matter; what matters is the aggregate effect - the change in the general price level has to be adjusted for in the financial statements. Given the foregoing, the following question needs to be answered: Are financial statements unadjusted for price level changes relevant under changing conditions in the money, commodity and labor markets? The answer to that question, which is developed in the later analysis, is based upon the fact that an increase in the general price level due to the net effect of changes in specific prices is different from an increase in the general price level due to a simultaneous increase in all prices.

It must be emphasized that: *(1) a price system signals changes in the demand and supply conditions of the various goods and services provided by the economic system, and (2) the function/purpose of price level adjustments is to enable the conversion from a measurement using a price system to a physical quantity system - in order to determine the change in physical output.* It should be quite clear that *if prices are held constant, then the price system cannot be functional.* Accordingly, this paper argues that the manner in which the price level change is brought about does matter [Salvary 2002, 40-41], and when changes in the general price level are the result of the net effect of changes in specific prices, adjustments of enterprise accounts for general price level changes are misguided and misleading.

Organization of the Remainder of the Paper

The rest of this paper is divided into six parts. The next section presents *Inflation: Its Cause(s) and Measurement*; that section is followed by *The Financial Reporting Issue*. The succeeding section focuses on *Consumption, Production, and Financing*. The section that follows is a discussion of *Financial Accounting, The Measurement Property, and The Capital Market*. Next comes *A Critique of Current Cost Accounting and Constant Dollar Accounting*. The final section is the *Summary and Conclusion*.

3 - INFLATION: ITS CAUSE(S) AND MEASUREMENT

Probably the most accepted *definition* in the literature of inflation is that it is "a persistent tendency for the general level of prices to rise" [Trevithick and Mulvey 1975,1; Griffiths 1976,10]. In spite of a persistent increase in the general level of prices, there are yet some items (e.g., microwave ovens, calculators, cameras, watches) whose prices have fallen considerably over the last few decades. The reason for inflation accounting is provided by the monetarists, who maintain that the rise in the general price level is due to the simultaneous increase in the prices of goods and services brought about by a mismanagement of the money supply. If changes in the general price level occur in this fashion, then inflation accounting is on firm grounds and current financial accounting measurements have to be adjusted unless there is a currency devaluation to correct the inflated values.

The chief monetarist [Friedman 1980,254-255] maintains that inflation (wherever it exists) is always a monetary phenomenon.³ This statement is based upon the quantity theory, which has the neutrality of money as its most fundamental assumption. That is an increase in the money supply can only have one effect--an increase in the price of goods and services. So by definition, inflation is a monetary phenomenon. However, much empirical evidence has been amassed and presented in the economics literature which contradicts Friedman's hypothesis. A monetary cause of inflation would be true in an economy in which paper money was replaced by precious metal as the medium of exchange; but even then, it has been shown that only in limited and in infrequent situations has this condition been fulfilled [Brenner 1971,74; Gould 1965,94-96,108,109]. It has been clearly pointed out that, while an increase in the money supply can accommodate or accentuate a rise in the price level, changes in the general price level is not a monetary

phenomenon [Ball 1964,69,77; Cairncross 1975,67-69; Hansen 1951; Harrod 1973,82; Hawtrey 1950,Chap.1; Holtfrerich 1986]. It is to be found in a barter economy [Fuller, 1980,6-7]; in which case the entire set of exchange ratios are realigned, thus, redistributing exchange (purchasing) power among the members of that society. Inflation is attributable to non-monetary factors [Dow and Seville 1988,240].

Demand and supply conditions in the money, commodity and labor markets change over time producing changes in the price structures. Consumers then react to this change in prices in a manner conducive to the maximization of their consumption given their budgetary constraints. In a market economy, money adjusts (viz: velocity of money and credit) to the demands of the economy. However, where banks exist as economic regulators monetary policy enters the picture. Through the use of *monetary policy*, which is not an inherent attribute of money, the economy is forced by central bankers to adjust to monetary policy [Griffiths 1976,5; Pippenger 1982,549].

Although monetary policy may produce a change in the exchange ratio (nominal money vis-a-vis commodity), such a change is not itself a *problem* of inflation: "if everyone's income and assets rise proportionally and in step with the price level ... [they are] fully 'indexed'" [Fuller 1980,8]. In this situation, no segment is worse off than before; thus, it is fairly obvious why governmental policy in some countries would provide for income indexation [McCallum 1983,416-418]. Inflation as a consumer problem is present as a problem when everyone's income and assets do not rise proportionally. Given this background, *inflation can be defined as persistent changes in relative prices which produce a sustained change in the general level of prices in an economy to the detriment of some members of that economy*. Given this definition, inflation, which can be accentuated (aggravated) by monetary policy such as unrestrained consumer credit and an ad hoc interest rates policy [Harrod 1973,97], is caused by the realignment of prices given changing demand and supply conditions [Salvay, 1997/1998]. The monetarist model is a special and rare case. Changes in the general level of prices do not follow the monetarist model. An increase (decrease) in the general price level is a result of the net effect of the realignment of the prices of all goods and services in the economy.⁴ Some prices go up and some go down, while others remain unchanged.

One might expect that a change in the value of money brought purely by an expansion in the circulating medium would have similar effects on all prices; whereas, in fact, prices of different commodities and services moved at

different speeds and, in one or two instances, even in the opposite direction [Gould 1965,95].⁵

An increase in the general price level is due to the fact that the prices which go up in the general basket of goods and services outweigh those that go down; the reverse holds true. Therefore, some consumers would be better off; some would be worse off; while others would be unaffected by the realignment of prices. Since: (a) the firm is faced with specific price changes for the items in its portfolio of productive assets and (b) the producer is not identical with the financier/consumer, then the general price level adjustments when applied to financial accounting measurement are not meaningful and are uninterpretable.⁶

As opposed to the erosion of business real (physical) capital brought about by the declining value of money, a more explicit view of inflation is the rising cost of living. Quite clearly and unequivocally, the impact of inflation is on end consumers. The use of paper money, which has no intrinsic value, permits a measurement of this impact, viz: consumer price index (CPI). However, each consumer is affected not by the general price level index (CPI), but by the changes in the prices of the goods and services entering into his/her individual (and separate) budget equation.

As attributed to Koopmans, if a money illusion exists it is due to individual price changes that affect the individual's demand function for commodities. The general price level has no direct relevance. Therefore, to stabilize money in its accounting function it is necessary to stabilize only the prices of the specific goods entering the separate budget equations of every one of the individuals in the economy and not the average price level as expressed in some index [Botha 1959,154-155]. The foregoing position is reinforced by Von Wieser [Botha 1959,155], who maintained that money will remain 'stable' with respect to the individual consumer if and only if the prices of the goods which he/[she] buys do not change. However, the stabilization to every individual of money in its accounting function could only be carried out if all prices were kept constant over time. To accomplish that end would require that the price forming process itself be eliminated.

Any measure of the impact of inflation should be based on its effect on end consumers by relating their incomes to the changes in the specific prices that affect their specific baskets of goods and services. Apparently, the most important information, which an individual household would like to get about price changes, is information on how the price changes have affected the specific individual household's standard of living [Eichhorn 1978,19]. The cost-of-living index compares the individual household's budget

of the base period with the smallest budget needed in the comparison period in order to satisfy that level of utility (standard of living), which was at best possible with the base period's budget [Eichhorn 1978,20]. Given what is included and what is omitted at different points in time, this index is much too general to satisfy the needs of the individual consumer. However, individuals are cognizant of their nominal money incomes and the nominal money prices of goods and services which enter into their individual baskets of goods and services.

Arrow [1974,20-22] maintains that while efficiency can be achieved through the price system, *the price system is indifferent* to the individual's position; consequently, a just distribution of income is not prescribed by the price system in any form or fashion. It is most unfortunate that in the inflation debate, *paper money is considered the villain for a problem which is inherent in the price system.*

3.1 - Nominal Money, Purchasing Power, and Financial Accounting

The desire for change in financial accounting measurement in periods of rising prices is due to a concern for the preservation of purchasing power. However, it is important to note that purchasing power resides in commodities and not in nominal money. The purchasing power of a commodity is measured by a scale: nominal money [Steuart 1767,408-413]. Thus, money is only a reference frame for expressing the purchasing power of commodities. Furthermore, the transference of price (a measurement) to commodities does not in turn transform the commodities into the scale [Salvary 1996]. There are several factors that prevent commodity money from effectively transferring purchasing power over time. Some commodities are perishable (e.g., fish, vegetables); others which are not perishable may no longer be demanded (e.g. buggy whips); those that are still in demand are affected by the changes in technology and taste. The ability to transfer purchasing power over time is unique to nominal money. In light of that situation, Davidson [1972,62] maintains that money is "a vehicle for transferring purchasing power over time." Accordingly, any adjustment of the money value assigned in an exchange transaction (i.e., price) produces an alteration of the signal generated by the system. "Such information alteration could reduce the informedness of agents [individuals]" [Salvary 1997/1998,99].

Myddleton [1984,20], in strict adherence to Gynther's view ("... money means something different to every entity, especially through time."): (1) confuses purchasing

power with money; and (2) finds fault with the Sandilands' Report by accepting Gynther's view as an interpretation of the Sandilands Committee's position. Since purchasing power is an attribute of commodities and not of money [Salvary 1993,156-157], the position taken in the Sandilands Report [Myddleton 1984,20] (“The ‘purchasing power’ of money is not an attribute of money quantifiable without a knowledge of what money is to be spent on.”) is valid.

4 - THE FINANCIAL REPORTING ISSUE

Proponents of inflation accounting maintain that currently financial accounting information reflects measurement with money values from the past; thus, the *nominal money* as a measure of organizational performance is seriously flawed. It is held that the measurement unit (nominal money) causes erosion of capital to escape the attention of business managers [FASB 1986,2; Mosich and Larsen 1982,497-498; Morgenstern 1963,66; Business Week 1979,108-112], and that this condition is responsible for the inability of business firms to replace assets internally [Niehans 1978,127; FASB 1979,para.124]. To correct the alleged deficiency in financial accounting information (i.e., to reflect the impact of inflation on the firm), the firm’s operating performance should be reported using constant dollar and/or current cost accounting.

4.1 - Financial Performance Measurement Vs Financial Planning Management

The alleged financial accounting deficiency in an inflationary period is based upon the premise that: (1) past prices are irrelevant to current production (e.g., Parker [1975, 512-524]), and (2) the future cost of replacing assets will be greater than the present cost of assets that are in use (e.g., [Niehans1978; FASB1979]). The recommended solution to the *problem of future financing needs* is to alter the financial measure of performance in order to ensure the availability of internal financing for future asset replacement, which may or may not occur. While the cost of capital is related to the raising of capital, the two are not the same. The cost of capital affects the measurement of performance; however, the amount of capital raised does not enter into a determination of operating performance, it constitutes the denominator in arriving at the periodic rate of return. Unequivocally, at times money-capital is simply not available either in the desired quantity or at the desired cost; to counter such an uncertainty, managerial policy has been to retain sufficient earnings to satisfy future needs.

While the concern for future financing is sound, the issue of self financing has to be kept separate from the measurement of financial performance. As noted by Haavelmo [1960,156]:

It is essential to realize that these effects cannot be “deflated away” by reckoning in constant dollars, or the like. Actual or prospective changes in money value of [physical] capital enter in a very real way into investment decisions and may affect the volume, as well as the structure, of [physical] accumulation.

Measuring current financial performance is distinct from managing future financial planning. Since the premise (financial self-sufficiency--the firm should retain earnings to satisfy possible future asset replacement) is embedded in managerial accounting considerations (financial planning), the solution for possible shortfalls of internal funds for future financing needs should be addressed within the framework of managerial accounting (ex ante projection) and not be directed to the functions of financial accounting (ex post measurement). In the deliberations of the Sandilands Committee [1975,107], full and explicit recognition was given to the distinction between ex ante projection and ex post measurement by the Institute of Chartered Accountants in England and Wales in 1949 with Recommendation N. 12 and reaffirmed in 1952 with Recommendation N. 15: "any amount set aside to finance replacements (...fixed or current assets) at enhanced costs should not be treated as a provision which must be made before profit for the year can be ascertained but as a transfer to reserve [an appropriation in the US]". Unlike the UK standard setters, the US standard setters do not recognize the ex ante projection/ex post measurement distinction.

Since the FASB [1979, paras.138,139] is concerned with the prediction of cash flows (which can be distributed as dividends), it is understandable why future financing needs (a decision criterion) is given precedence over actual money outlays (the measurement property) associated with a plan in progress. Nevertheless, the question as to which course of action (alternative - what set of productive assets and which set of goods and services) should have been (be) chosen by management is a *managerial accounting decision problem* and not a *financial accounting measurement/reporting problem*.⁷ After carefully considering its opportunity cost, once the firm decides to stick to its production plan, it is unlikely that information concerning the constant dollar value and current cost of the firm's assets can assist users in *the prediction of the cash flow from the firm's current production plan*.

It is important to note that: (1) both standard-setting bodies (the UK standard setting body and the FASB) recommended current cost; and (2) changes in specific prices do not constitute a deficiency in the measuring unit - nominal money. Accordingly, it is understandable why Johnson and Storey [1982,131], in agreement with Sprouse [1978], have stressed that "current cost accounting" is incapable of reflecting anything about the effects of inflation (changes in the general level of prices) because current cost accounting deals with specific price changes and not with changes in the general level of prices. They maintain that inflation occurs only when money loses value; that is, *when all prices of goods and services rise simultaneously*.

There are three important points which need to be emphasized. (1) As a direct consequence of the social evolutionary process, the capital market emerged to accommodate the financing of large scale operations; thus, the burden on the individual and invariably the inability of the individual to raise the massive amounts of financial capital were eliminated. (2) Keynes [1930,301] identified windfall profits as the increment in wealth (the increase of nominal money flow) belonging to entrepreneurs who have been able "to dispose of their output at an enhanced price." (3) Public finance theorists have argued that intergenerational equity should be observed; that is present generations should not be required to bear the cost of benefits to be enjoyed by (underwrite the consumption expenditures of) future generations [Herber 1971,546-552]. The arguments for inflation accounting as presented oppose windfall profits and intergenerational equity. Evidently, if accountants were to match future costs with current revenues, future shareholders would benefit at the expense of existing shareholders. Given the use of replacement cost, reported income would be lowered, consequently, the accounting rates of return would be lowered. Therefore, any shareholder selling shares would be losing value and the shareholder buying the shares would be the beneficiary in such an unintended wealth transfer. As can be understood from the perspective of the misinformation, the naive investor hypothesis does not apply.

5 - CONSUMPTION, PRODUCTION, AND FINANCING

In the existing economic system, one hears talk about real wages. The underlying reality is that real wages are a function of nominal money wages. Evidently, the role of nominal money in the economic system cannot be overemphasized. Individual wage-

earners can only resist changes in (and hence determine) money wages but cannot determine their real wages, since that is a function of commodity prices [Keynes 1936,10-15]. So for the purposes of planning in a money economy, the relevant criterion is that which mobilizes the economy by effectuating allocation decisions: *relative prices as expressed in nominal money*. This sentiment is shared by some early scholars:

[M]oney is a most powerful agent in the distribution of wealth; and those who, in a country where all exchanges are practically effected by money, continue the attempt to explain the principles of demand and supply, and the variations of wages and profits, by referring chiefly to [physical quantities] hats, shoes, corn, suits of clothing, etc., must of necessity fail. [Malthus 1827, 60]

[I]t is the nominal or money price of goods ... which finally determines the prudence or imprudence of all purchases and sales, and thereby regulates almost the whole business of common life in which price is concerned, we cannot wonder that it should have been so much more attended to than the [physical quantity] real price. [Smith 1776, 86]

In the social setting, two distinct phenomena exist: consumption (an end) and production (a means to the end). In a surplus-oriented economy, the means of production have to be financed and the process of production has to be organized. It is quite clear that in the consumption and production decisions, the importance of nominal money cannot be overemphasized [Arrow and Hahn 1971,356].

Three groups are important in a production oriented society: (1) the consumers, whose consumption (W) make production (O) a necessary phenomenon; (2) the financiers, those who supply the money-capital (savings) to finance (F) the means of production; and (3) the producers (the firms), those who organize production (O). The three participants are faced with three different but interdependent decisions:

Consumer: What basket of goods and services is to be selected for the current period?

Producer: What should be produced? When and How should it be produced?

Financier: How should the existing money savings be allocated among the yield opportunities in the given period?

The consumer attempts to maximize his/her consumption given personal taste (T_c), specific prices that affect his/her basket of goods and services (S_p), and his/her budget constraint (I_c). The producer (the firm) attempts to maximize profit from production (O) given consumer demand (D_c) and factor prices (P_f) subject to the constraint of the

availability of money capital (M_a). The financier attempts to maximize the return (E) on his/her money savings (M_s) for a given risk (R) of default. The financier ventures to maximize after tax yields (nominal money returns) to optimize/satisfy consumption and financial wealth accumulation. (Financial institutions are financiers but they are not of themselves consumers.) The producer (the firm): (a) is in business to make money and not to hold productive assets, and (b) is always confronted with changes in the specific prices of the factors of production. The firm adjusts price and quantity of its output in its attempt to maximize profit. In this setting, inflation (a sustained increase in the general level of prices) only affects the consumers.

Though the three participants are necessary for a production-oriented market economy, their objective functions are not identical. There is interdependence but no substitutability among these optimizing functions. All participants seek to optimize the use of the nominal money at their disposal. Additionally, there is a difference between consumption and production. Also, organizing production--the investing function--differs from the financing of production--the savings function [Keynes 1936,21]. While the producer is involved in an active process (the acquisition and deployment of factor combinations), the financier is involved in a passive process (the transfer of money savings in exchange for a claim instrument against future production). *To assume that the roles of production and financing are interchangeable (alternative modes of conduct) is to assume that society can function without production and can survive exclusively on the basis of financing activities.*

6 - FINANCIAL ACCOUNTING MEASUREMENT AND THE CAPITAL MARKET

Financial accounting is an administrative information science [Salvary 1985;1989;1992]. It provides for an observational report with measurements based upon concepts which correspond with the structures and regularities of the system (the nature of the firm, the role of time, planning, investment plans, contracts, the means for the settlement of obligations, the posting of nominal money prices) from which it abstracts. The entity is engaged in a cash flow process and the measurement property identified in this process is recoverable cost. This process is captured by the accrual basis financial accounting. It begins with: (a) financing, (b) investing - acquisition of productive assets, (c) transformation of inputs into the consumable product, (d) distribution of the product, (e) realization of the vendible value (a receivable established), and ends with (f) collection

of the realized value. (The foregoing description of the process is modified for financial and service enterprises.)

The pricing of the cash flow is entirely different from the measurement of the cash flow. Financial accounting is concerned with the measurement of the cash flow; whereas, the *raison d'être* of the capital market is to enable financiers to place a price on existing cash flows to reflect changes in the supply and demand for money. *It must be emphasized that in a money economy cash flow is the primary concern of financial accounting measurement since the rate of return on financial capital--value productivity--dominates physical productivity, and the flow of physical quantities is a secondary (but an important control) function of financial accounting.* Agreement exists on the need for financial accounting information; however, there is the issue of how should the sacrifices and benefits be measured?

It seems logical that the basis for the investment decision should constitute the basis for the measurement of the sacrifices and benefits. The firm invests nominal money in a plan based upon the recoverability of the nominal money invested; hence, the measurement property is the estimated recoverable cost [Salvary 1985;1989;1992]. Investment decisions of the entity are directly linked to the recoverable cost property. The entity's cash flow from operations is a function of the estimated recoverable cost and the markup on the entity's output, which is a function of supply and demand in the commodity market. Given the estimated recoverable cost of operating assets and the firm's expected rate of return, a prediction of the expected cash flow from operations can be made. Prediction is always complicated by the need to predict the component parts of net revenues. The prediction is further complicated by the fact that many firms do have assets stated at amounts in excess of their recoverable amounts; a condition which usually leads to the "big baths"--massive subsequent write-offs. However, the firm has to be judged in terms of the plan(s) which it present(s) to the financiers.

Financial accounting information as outlined above permits the firm to be judged in context of its decisions. The entity's plans are presented in nominal money terms. At any point in time, if financiers do not like the plan(s), they can liquidate their position. However, *it must be remembered that not all firms are publicly traded. So the functioning of financial accounting is independent of the presence or absence of a capital market.* An analysis of the production decision in a money economy follows.

6.1 - Production in a Money Economy

A money economy introduces the ability to store purchasing power in nominal terms. In a surplus-oriented money economy, the production process is motivated by monetary exchanges to accumulate money (store uncertain purchasing power). Following Boulding [1950,106,112] and Georgescu-Roegen [1971,216], it is asserted that the firm is concerned with the accumulation of a stock of money. Profit (or loss) emerges as a consequence of the production process; it is the difference between inflows of money into the commodity market representing consumption decisions (the revenue stream from consumer demand) and the portion of the nominal money investment in production consumed by consumer demand a given period.

Production involves a risk. Generally, producers expect that the total selling price (S) of their goods or services would cover: (a) the total money outlay (C) to produce the goods or services, plus (b) a reward (P) for organizing production. In managerial accounting, this condition is represented by a budget: $P^* = S^* - C^*$ (* = Expected). The inherent risk is that the expected selling price may not eventuate. The actual situation-- $P/L = S - C$, where P (profit) or L (loss) as experienced by the producer is reported in the firm's income statement as prepared in financial accounting. The producer's subsequent evaluation (reconciliation of actual and expected performance via managerial accounting), as reflected by equations (1), (2), (3) and (4), would reveal that a random (an unplanned) factor (U) has entered the picture. S^* , C^* , S and C are in nominal terms/dollars.

- (1) $S = S^* + U_1$ $(-k < U_1 < k)$ where $k < \infty$
- (2) $C = C^* + U_2$ $(-k < U_2 < k)$ where $k < \infty$
- (3) $P \geq P^*$ when $U_1 \geq 0$, and $U_2 = \text{or} < 0$
- (4) $L = P^* + U_1 - U_2$ where $U_1 < 0$ and $U_2 > 0$, when $(-U_1 + U_2) > P^*$

Management presumably selects the best among competing alternatives in order to optimize the nominal money output given the nominal money input. Profit or loss is a consequence of the managerial decision in an uncertain environment. The general opposition to the role of nominal money in the current debate on financial accounting cannot be reconciled with economic reality and entrepreneurial expectations [Salvary 1990,218-221].⁸ The argument for physical comparability (constant dollar) ignores the fact that all firms do not have the identical cost (supply) curve [Christ 1958,350-351]⁹ because they make decisions in anticipation of a future they perceive somewhat

differently. Therefore, the timing of their actions (nominal money flow decisions) reflect the differences in anticipation. Subsequent to their money outlays, some firms (with incorrect timing decisions) will be forced out of the industry because their supply curves will effectively eliminate them from the market [Von Mises 1949,286-291; Kaldor 1966,34-50; Marshall 1927,808]. Their departure will be precipitated by the inability to recover money invested in production given the new (unanticipated lower) market prices for their output--*cash flows generated by the real (physical) assets are insufficient to recapture the nominal money invested in those real (physical) assets.*

6.2 - Real Assets, Cash Flows and Security Market Prices

Current accounting measurement in financial reports is considered flawed due to two issues are addressed below.

- (1) In an inflationary environment, a firm whose nominal profits are constant from year to year suffers a decrease in real profit.
- (2) The real rate of return is the return to determine the viability of an investment.

Issue #1: In the normal operation of the firm, management pursues a cash flow plan which is financed in the capital market by money savers. Having obtained the necessary financing, management sets in motion the production process with investments in productive (nonmonetary) assets at the initial state based upon the firm's desired rate of return and the expected net revenues. The nonmonetary assets take on no other significance than merely as stores of financial capital to be released in the production process [Salvary 1997,94-96]. The financiers arrive at a price of the firm's (producer's) expected earnings--the cash flows expected to be derived from the firm's operation, but they do not place a value upon the firm based upon the replacement cost or realizable value of the physical assets which are in the possession of the firm.. (Disclosure of proven reserves for oil companies, backorders, and other similar disclosures facilitate projections--they provide information on the future availability of inputs necessary for continued output.) The assets (monetary and nonmonetary) are simply means to an end; they are cash flow generators and not ends in themselves. In this case, the capital market prices estimated future earnings (cash flows expected to be generated during the change from nonmonetary asset form to a monetary claim), and financial accounting measures actual current earnings (cash flows) [Salvary 1998,34-39].

As measured in financial accounting, earnings/profit E_p consists of two elements [Salvary 1992,241]: (1) *a current cash flow component* (E_{cf}) (earnings realized in the form of cash - current cash flow) plus (2) *a future cash flow component* (E_{ff}) (earnings realized in the form of credit - an accrual of estimated discounted future cash flow):

$$(5) \quad E_p = E_{cf} + E_{ff}.$$

If producers' earnings are adjusted by a price index then the adjusted earnings information would result in distorted market prices for securities--claims against producers' future earnings. This condition holds since in an inflationary period each financier, in his/her valuation (pricing) model, makes an adjustment to the rate of discount (R_n) by which the future earnings (cash flows) would be discounted to compensate for any difference between what is perceived to be the 'real' rate of interest and the 'nominal' rate of interest.

The valuation model is presented in equation (6):

$$(6) \quad M_{st0} = RV(R_n)^{-1} + \sum_{n=0}^k (E_n)(R_n)^{-1} \quad (t = \text{index}; n = \text{number of periods})$$

In this model, M_s is the present value of an investment stream (security market price). RV is the residual value at the end of the holding period. E_n is the stream of estimated future earnings (cash flows). R_n is the risk adjusted discount factor. R_n is periodically adjusted by the financier to compensate for the specific effect of changes in the price level on the financier. E_n is the financiers projection based upon current earnings (cash flows) as provided in financial reports. Since R_n , which is financier specific, is already adjusted for changes in the price level, if current earnings (cash flows) are adjusted by the Consumer Price Index, then market price distortion will ensue.

Issue #2: The real rate of interest (return) is defined as the nominal rate of interest (return) less the rate of inflation [Cohen, et. al. 1987,15,29]. Essentially, the real rate of return is an inflation-adjusted return [Waggoner 1994,3B]. There are problems with financial accounting measurements. However, assuming that the measurements are proper, if what is needed is a measure of the real accounting rate of return, then this can be arrived at by simply subtracting the "rate of inflation" from the accounting rate of return. *The number arrived at by adjusting a host of different items in the financial statements by a host of different scalars cannot be meaningfully interpreted.*

Indubitably, inflation is a problem for many members of society, but to ascribe the failure to arrive at the impact of inflation on the business enterprise as a deficiency of financial accounting is erroneous. The error occurs as a result of the illegitimate substitution of roles (the producer is considered synonymous with the multiplicity of shareholders who constitute the financier/consumer). Assuming that general price level adjusted data validly address the information need of one shareholder who is the sole owner of the corporation, then the substitution of the financier with the consumer is valid. In that case, the measurement of the impact of inflation on the business firm (limited to an adjustment of the earnings amount only) is identical to the impact on the financier/consumer. However in the case of the publicly held corporation, since the purchasing power of a sum of money is investor/consumer specific, how can any measure of a firm's purchasing power units be meaningful to so many varied investors with entirely different consumption patterns (different baskets of goods)? This point is accentuated by Tobin [1978,246]: "It is not in fact possible to invest in the GNP Deflator or to hoard the basket of goods, services, and taxes valued by the Consumer Price Index."

The foregoing analysis provides a suitable basis for evaluating the performance of the firm and the relevance or irrelevance of financial accounting measurement in an inflationary environment. At this stage the recommended approaches to measuring the impact of inflation will be explored.

7 - CURRENT COST ACCOUNTING AND CONSTANT DOLLAR ACCOUNTING

Current Cost Accounting, the alternative approach recommended by the FASB to provide information on the effects of inflation, deals with specific price changes and does not provide information on general price level changes. Since specific price changes do not constitute a necessary or sufficient condition for inflation, current cost accounting is not inflation accounting.¹⁰ Furthermore, the concern for measuring performance by adjusting for current cost, which is a physical quantity approach, reflects implicitly an assumption that production is timeless, and therefore, production and consumption occur simultaneously.¹¹ The main method of accounting for the preservation of purchasing power - constant dollar accounting - will now be evaluated.

7.1 - Constant Dollar Accounting

Under the definition of inflation as the simultaneous increase in all prices, then the

unit of measurement--money--is not stable; as such, it is necessary to hold the unit of measurement constant in order to measure. The difference between the unadjusted measurement and the adjusted measurement would constitute the impact of inflation.¹²

Changes in prices alter the physical relation underlying nominal money (dollar/pound/franc) values. A lack of interperiod correspondence between physical quantity flows and financial volume flows emerges. To preserve the physical quantity/financial flow relationship, the use of constant dollar accounting is advocated. The measurement obtained by holding the unit of measurement constant (adjusting for price level changes) is termed constant dollar accounting. The argument for inflation accounting is capsulized by Niehans [1978,127]:

Provided consumption in a given period is never an inferior good, money illusion will distort present consumption upward at the expense of future consumption. Resources are used up that would have been necessary to maintain the capital required to provide for the hoped-for future consumption. In future periods the individual will thus be disappointed to find that money income is insufficient to buy the hoped-for consumption bundle; he [she] is left with an inefficient allocation of consumption over time. ... for the accountant it appears in the form of a firm that determines its profit distributions in such a way that capital, in money terms, just remains intact. Such a firm will later find that its owners have actually dissaved consuming capital in the guise of profits.

The above passage reveals a misapplication of a social income concept (physical capital maintenance) in measurement of business income [Salvary 1997,100; 1979,366-369].

If conventional financial accounting measurement causes management to be uninformed, then one would expect that empirical research on: (a) bankruptcy would reveal that financial statements adjusted for price level changes would be good predictors of firms that go into bankruptcy, and (b) dividend policy would reveal that firms are unaware of their future financing needs. The empirical evidence does not support such a contention. The empirical study by Norton and Smith [1979] concluded that general price level adjusted financial statements are no better predictors than conventional financial statements in the prediction of bankruptcy.¹³ The empirical evidence [Meyer and Kuh 1959; Brittain 1966; Rumelt 1974] on the role of dividend policy in the investment decision contradicts the assertion that management is unaware of its financing needs by paying out capital, needed for the replacement of assets, in the form of dividends. Then

what is the significance of information reflecting the preservation of the physical quantity/financial flow relationship - the maintenance of productive capacity?

7.2 - Current Cost Accounting - Maintenance of Productive Capacity

The maintenance of productive capacity is only one possibility *inter alia* of management's decision. Since the rate of return on money invested (rather than the type of physical capacity) is the prime investment criterion,¹⁴ shareholders cannot be construed to be concerned with the maintenance of physical capacity; and less concerned would be creditors since their stake is in the recoverability of their money advanced to the borrowers rather than the commitment of their funds anew to new investment projects. The decision whether financial capital should be retained to enable the maintenance of productive capacity (physical capital) or returned to shareholders in the form of dividends is a managerial decision.¹⁵ It is not a concern for financial accounting.

The problem in this area of what should be maintained financial (money) capital (K_f) or real (physical) capital (K_p - referred to as economic capital) is attributable to the carryover from the classical economists in the analysis of a subsistence (corn) economy [Salvary, 1993;1997/1998,101-102]. Apparently, it is from this corn analysis that the Hicksian consumption definition of income is derived. Upon recognizing the fruitless debates caused by uses of his definition of income (1939 - *Value and Capital*) in an unintended manner, Hicks [1942,133] lamented and emphasized the limitations of his definition of income. The caution by Hicks is not surprising since the Hicksian definition may have been derived from John Stuart Mill's [1830,88-89] and James Mill's [1844,75-84] definitions of social income. According to those definitions, the purpose of maintaining physical capital as a nation was the preservation of the individual laborers.

The net social produce of a country is whatever is annually produced beyond what is necessary for maintaining the stock of materials and implements unimpaired, *for keeping all productive labourers alive and in condition for work and for just keeping up their numbers without increase* [Mill 1830,89].
(*Emphasis added.*)

The distributable income concept [Vancil and Weil 1976,58] which is directly related to the concept of distributable operating flow [Revsine 1973,Chap.V] is a derivative of John Stuart Mill's [1830] and James Mill's [1844] consumption model which applies to society as a whole. This *consumption model*, called by any other name:

"distributable income" or "sustainable income", is the rationale for the FASB's espousal of current cost as one approach to addressing the inflation issue:

Erosion of physical capital (or erosion of operating capability) may be regarded as the failure to retain sufficient financial resources to acquire the assets needed to maintain the capacity of the enterprise to provide a constant supply of goods and services. The concept of physical capital erosion may be linked to a concept of distributable income where distributable income is defined as the amount of cash that may be distributed without reducing the operating capacity of the enterprise. The information on current cost income from continuing operations required by this Statement provides a basis for users' assessments of distributable income [FASB 1979,para.124]. (Emphasis added.)

In a market economy motivated by a concept of surplus (profit), there is no basis for the replacement of physical assets simply to produce a constant supply of goods and services. *Replacement constitutes an investment decision which must satisfy the criteria for investment.* It must be stressed that: (1) perpetuation of the firm is not a social imperative, and (2) nominal dollars are advanced by financiers and nominal dollars are returned to them. It seems logical that financial capital should be maintained.

The term distributable operating flow, which underscores the physical capital maintenance concept, is defined as: "that amount of resources that can be distributed to owners without constricting the level of physical operations" [Revsine 1973,126].¹⁶ In defense of physical capital maintenance, Revsine [1982] argues from the framework of national policy. Revsine [1982,83-84] maintains that: (1) the firm will be paying taxes on income determined under the financial capital maintenance approach which would not be income under the physical capital maintenance approach; and (2) income so determined could not be exempt from income taxation because it would be conceptually inconsistent to argue that income exists but it should not be taxed.

From a national policy standpoint (John Stuart Mill [1830] and James Mill [1844]), it is the individual taxpayer whose sustainable income has to be considered. Yet, there is no argument for the determination of the individual's taxable income on the basis of the physical maintenance concept (determining taxable income by maintaining the ability to acquire the preceding year's basket of goods and services). The individual's taxable income is based on the current period's expenditures unadjusted for changes in the level of prices.

Unequivocally, in a surplus economy in which what is capital and what is

consumable are entirely different, the maintenance of physical capital (productive capacity) by the firm is inappropriate as a financial accounting concept for determining periodic performance--profit measurement. In financial accounting, a distinction is made between prices and recoverable money outlays. All prices eventually become past prices; however, past prices are not recorded in financial accounting. *For example, when a firm acquires a productive asset, it is the money outlay or its equivalent that is recorded in financial accounting provided that such amount does not exceed the net present value of the investment.* Once an investment has been made, the amount recorded for the asset represents the estimated present value of the investment (the estimated recoverable amount), which can be equal to or less than the actual money outlay [Salvary 1992,246]. (This fundamental accounting measurement rule has been violated frequently in current practice, e.g., World Com, Qwest, etc.)

A risk, which is inherent in any profit-oriented undertaking, exists that the actual present value may differ from the estimated present value. Nevertheless, the money outlay constitutes a storing of services and provides the basis for determining input cost. As these *stored services* (e.g., money commitments in capital goods) are used up, they constitute the current cost to the firm. Use of current replacement cost would constitute a substitution of future cost in lieu of actual current cost (the stored future services--planned cost which flows with the gestation of the plan). Under the current replacement cost approach, accountants would be matching future costs with average revenue.

Self-sufficiency of internal financing is being peddled under the pretence of getting a better matching of costs and revenues. This approach is simply the usurpation of the function of the capital market. One may say why should the capital market be the source of future financing? To answer this question would lead to a discussion of the evolution of the capital market, which is beyond the scope of this paper. Briefly however, the history of society reveals the existence of an evolutionary process of adaptation which is oriented toward the maximization of the social welfare. Various institutions have been introduced by society at various points in time in its attempt to be efficient and effective in executing social exchanges. Clear examples of the social welfare maximizing adaptive process are the firm, money, a money economy, and the capital market [Salvary 1997, 90-92].

8 - SUMMARY AND CONCLUSION

Business firms are always confronted with specific price changes in the cost

(nominal money prices) of the factors of production, and factor costs constitute the basis for output price determination. The firm, except it be a monopoly or enjoy an oligopolistic situation, has to price in accordance with market demand conditions. A nominal price is set for its output based upon a desired rate of return on nominal money invested. It is only after the cash flow (the nominal money flow) has been determined that one can determine the financial capability of the firm. Since each production plan: (a) is unique to its market condition at a given time and place, and (b) is expressed in nominal money terms, the return on finance as used in the production plan should be measured in current nominal dollars. This position does not negate individual financiers/consumers from assessing their consumption preferences in real terms; that is establishing measures that reflect the manner in which individually they are affected by changing prices vis a vis their expectations of nominal returns (cash flows) from their investment portfolios. However, for the producer/firm, a constant dollar measure cannot be useful for *a nominal dollar (cash) flow system*. The firm's performance can be measured and judged only in terms of the cash flow (nominal dollars) generated by the alternative chosen.

How the many shareholders' consumption will be affected by rising prices given the shareholders' (as consumers) individual baskets of goods and services is a different question from how changes in specific factor prices affect a firm's profitability and cash flow. Unfortunately, *in the absence of monetary dislocation*, adjustment of financial accounting information of business enterprises for general price level changes will not enable a meaningful assessment of an individual's situation; it will only distort the information which purports to portray the financial condition and performance measurement of business enterprises.

Accounting is not a subset of economics! While an understanding of economics is very important, accountants should cease and desist from all attempts to convince themselves that accounting is a subset of economics. A price system signals changes in the demand and supply conditions of the various goods and services provided by the economic system and the function/purpose of price level adjustments is to enable the conversion from measurement using a price system to a physical quantity system - the determination of change in physical output. If prices are held constant, then the price system cannot be functional. Accountants have to focus on the further development of accounting theory and avoid the substitution of economic theory for accounting theory.

ENDNOTES

- 1 A very well organized argument against inflation accounting has been presented by Stickney and Green [1974]; however, that very insightful work has not attracted much attention in the literature.
- 2 The situation in Russia became more acute on August 17, 1998, when the The Russian Government devalued the ruble [Edwards, 1999,199].
- 3 For a similar view of this situation, see Von Mises [1949,254].
- 4 For a good discussion on the role of expectations, see Hicks [1942,117].
- 5 This condition exist because there are 'economies of scale', 'learning curves', and 'dynamic adjustment costs' [Gort and Konakayama, 1982, 1114,1115,1118].
- 6 For a comparative exposition on the information content of earnings, see Wilson [1987].
- 7 For an in depth view of this position, see Friedman [1958;1969].
- 8 The work of Vining and Elwertowski [1976,702,703,707] provides some support for this position.
- 9 For a similar finding, see Challis [1965,137].
- 10 For a very good discussion of this point, see Johnson and Storey [1982,131].
- 11 In this regard, Machlup [1935,582] maintained:

Only [in the case of the stationary state of an economic system] ... may maintenance of capital, including replacement of particular items of plant, be conceived as part of the production of the output consumed at the same time. But any theory of economic change and any theory of capital has to regard the time element as its integrant part. The production of a definite quantity of output can be done with or without full maintenance of the instruments necessary for its production. Therefore, the output of consumable services is not dependent upon the simultaneous input of productive services used for maintenance or replacement of plant; the productive services used for maintenance or replacement of plant are not a part of the production of services consumable at the same time, but at later moments of time; there is a time interval between the input of services and the "dependent" output of services ... [Footnotes omitted].
- 12 If costs and selling prices vary at different rates, then the inflation accounting methodologies (viz: historical cost/constant dollar, replacement - current cost/constant dollar) are not interpretable Boussard [1984,164].
- 13 Baran, Lakonishok and Ofer [1980,22-35] concluded that business earnings as adjusted for general price level changes are superior to the conventional measure of earnings. Samuelson and Murdoch [1985,706-710] have strenuously contested the position of Baran, et al.
- 14 Despite limitations of current financial accounting information given the acceptance of accounting standards as simply alternatives when more than one method exist, ". . the ROI measure contains, or is correlated with, information that stock market participants deem important as to profit performance [Jacobson 1987,477]."
- 15 Mill [1844,223] has emphasized that profit after it is realized becomes part of capital and is then subject to whatever use intended on the part of management.
- 16 For a variation of this position, see Revsine [1970].

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