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WHY MARX'S LABOUR THEORY IS SUPERIOR TO THE MARGINALIST THEORY OF VALUE: THE CASE FROM MODERN FINANCIAL REPORTING

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At the heart of all theories of accounting lies a theory of value and the origin of profit. Two conflicting theories of value have dominated the history of Western thought: the marginalist theory of economics and Marx's labour theory of value. Which theory provides the best foundation for a theory of accounting? Most accounting theorists uncritically accept the marginalist theory. Only a few pioneers have pointed out its logical inconsistencies, and begun to articulate a system of accounting based on the labour theory of value. Their work is developed here through an exploration of the relevance of Marx's labour theory of value for a theory of accounting in modern capitalism. It is argued that Marx's analysis of the socialization of capital around the "general rate of profit" anticipates the description of capitalism embodied in the principles of modern finance theory, and that his analysis of the capitalist process of production provides a remarkable description of the principles of modern financial reporting. It is concluded that Marx's labour theory of value is clearly superior to the marginalist theory as the foundation for describing and explaining the role and practices of financial reporting in capitalism.

Introduction

At the heart of all theories of accounting lies a theory of value and the origin of profit. Throughout the history of economic thought two conflicting theories of value have competed for intellectual dominance, the marginalist theory of economics, and the labour theory of value of political economy, particularly its development by Marx. The application of marginalism to accounting produces economic income theory within which profit is defined as the change in the present value of expected future cash flows (e.g. Fisher, 1906; Hicks, 1946). For economic income theorists, "capital" is the origin of profit. From the perspective of Marx's political economy the source of profit is surplus value. As Engels said, this is "...the crucial question in political economy, the theory of surplus value" (Marx, Vol. 2, p. 84).

Most accounting academics uncritically accept economic income as an "ideal" framework for conceptualizing financial reporting. Only a few have drawn on political economy, particularly Sraffa's work (1960), to highlight the logical inconsistencies in the marginalist theory and its weakness as the

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foundation of a viable theory of accounting, and have begun to articulate a theory of accounting based on the labour theory of value (Cooper, 1980; Tinker, 1980). From the perspective of political economy the central weakness of marginalism as a theory of accounting is its failure to recognize accounting as a social reality, as a reflection and reinforcement of the dominant social relations within capitalism (Tinker *et al.*, 1982; Cooper & Sherer, 1984; Tinker, 1985). In this paper we build on these pioneering efforts by exploring whether Marx's labour theory of value provides a foundation on which to construct a theory of accounting to investor capitalism.[1]

Sraffa (1960) showed that given the technical conditions of production and the real-wage rate, there is a logically necessary unique set of commodity prices and a uniform rate of profit which will allow the economic system to reproduce itself. He concluded that prices and profits could therefore be explained solely by the technical conditions of production and the real-wage rate without reference to subjective utility functions. With the logical necessity of marginalism removed, the onus is placed on the marginalists to provide other arguments or evidence to support their theory. None have been forthcoming and, for Marxists at least, Sraffa has delivered a "staggering blow" to marginalism (Mandel, 1984, p. xi). However, by the same stroke, Sraffa's work also challenged the labour theory of value. Sraffa did not merely show that the marginalist's theory of value was irrelevant. He showed there was no logical necessity for *any* theory of value; that we do not need a theory of value to provide a logical explanation of economic reproduction. On the basis of Sraffa's work; some economists have also concluded that Marx's labour theory of value is logically inconsistent, and irrelevant as an explanation of the functioning of modern capitalism (e.g. Steedman, 1977; Steedman *et al.* 1981).

Given the impossibility of choosing between marginalism and the labour theory of value solely on logical grounds, a primary task for accounting theorists must be to test their adequacy as descriptions and explanations of the current and historical functioning of accounting in its political, social and economic contexts (Tinker *et al.* 1982; Hopwood & Johnson, 1986). A prominent feature of modern capitalism is financial reporting to capital markets (Beaver, 1989). Thus, from this perspective, the marginalist and labour theories of value should only be accepted or rejected by accounting theorists according to their ability to describe and explain this aspect of capitalism (cf. Freeman, 1984, p. 264). As Ijiri says, "Before we make a value judgment, we must comprehend the foundations of accounting as they now exist [,]...the accounting theories and practices that are now socially acceptable" (1967, p. x). In other words, conventional cost-based accrual accounting which lies at the heart of modern financial reporting (Beaver, 1989, p. 7).[2]

The paper shows that Marx's labour theory of value is clearly superior to marginalist economics as a theoretical foundation for describing and explaining the role and practices of financial reporting in capitalism. We proceed as follows. We start by exploring the similarity between Marx's description of capitalism based on his conceptualization of the social relations of capital, and that provided by the modern theory of finance (MFT). Marx argues that

individual enterprises must be conceptualized as part of a larger social totality. As capitalism develops, production is increasingly socialized, complex and extended. Marx predicted that capital would also become increasingly socialized around what he called the "general rate of profit". It is argued that this concept anticipates the principle, to be found in all finance textbooks, that all capital investment is required to earn the return on the market portfolio adjusted for compensating factors, particularly risk. However, although the descriptions are remarkably congruent, the explanations are radically different.[3] Whereas MFT is founded on marginalist economic theory, Marx argues that the principle of required risk-adjusted return derives from the fundamental social relations of capitalism: between capital and labour, between capital and production, and between fractions of capital. From the collective (social) viewpoint of capital in opposition to labour, the general rate of profit expresses the dominant ideology that "capital", not socially necessary labour time, is the origin of value and of profit. While several scholars have extensively analysed the social relations between capital and labour (e.g. Rowthorn, 1974), few have analysed those between capital and production, or those between fractions of capital, which are the focus of attention here.

Marx argues that the general rate of profit provides capital with collective control of production through its "social disciplining" of enterprise investment. Between fractions of capital, he says, the general rate of profit provides a basis for managing potentially conflicting relationships between individual investors, and helps preserve the existing hierarchy of social power based on relative wealth, the demand for an "equal return for equal capital". As we shall see, recognizing the correspondence between Marx's labour theory of value and MFT removes claimed contradictions in his solution of the "transformation problem", his apparently contradictory derivation of the principle of risk-adjusted return from the labour theory of value, which has borne the brunt of modern critiques of his work.[4] Understanding Marx's solution to this problem will allow us to conceptualize the critical social role of MFR within capitalism—from his perspective, to make the production and realization of surplus value visible to collective capital. It is argued that, if Marx's labour theory of value is an adequate description of capitalism, his conceptualization of the capitalist process of production should correspond to the principles of conventional cost-based accrual accounting. Showing that it does, in remarkable detail, is the major objective of the paper.

Our focus for this analysis is the much neglected "technical" Volume Two of *Capital.* Only here does Marx finally work out in detail the implications of the labour theory of value for conceptualizing the capitalist process of production. We shall see that Marx's analysis of the "circulation of capital", his distinctions between "constant" and "variable" capital, and between "fixed" and "circulating" capital,[5] describe both the fundamental analytical postulates of conventional cost-based accrual accounting and their application to accounting for inventories, and accounting for depreciation.[6] However, although Marx's description is congruent with the conventional conceptual framework and practice of accounting, it sharply conflicts with the description provided by the economic income perspective. Marx's well-known critique of Adam Smith, as the outstanding "bourgeois political economist", is interpreted as a

conventional accounting critique of the application of the economic income perspective to the central issue of depreciation accounting, and is used to critique the influential marginalist interpretations of conventional accounting by Ijiri (1967), Mattesich (1964) and Thomas (1974) in which conventional depreciation accounting does not exist![7] Against the endeavours of these marginalists, it is concluded that Marx's labour theory of value provides a clearly superior description and explanation of conventional accrual accounting.

The General Rate of Profit and the Required Return on the Market Portfolio

Perhaps the commonest error in reading *Capital* is the failure to grasp Marx's insight that the age of "individual" capitalists was rapidly coming to an end, and that the age of *social capital,* of "investor capitalism", was dawning. For example, one of Steedman's underlying assumptions is that the "... means of production are owned by the capitalists..." (1977, p. 16). Thus, for him there are, for example, "iron industry capitalists" and, in general, "sets of capitalists" (1977, p. 39; see also Mandel, 1981, p. 76). However, as Marx wrote, a transition was occurring, from the ownership and management of production by individual capitalists to "Capital [as]... a social power, with the [individual] capitalist as its functionary..." (Vol. 3, p. 373).

According to MFT, in modern capitalism all investors should hold the market portfolio, a fully-diversified, value-weighted combination of all available securities, and by-and-large they do (Griffin, 1982, p. 40). There are few "individual capitalists" owning particular firms. By holding fully-diversified portfolios, *all* investors ("capitalists") own *all* firms. Thus, MFT clearly recognizes that, by holding well-diversified fractions of the market portfolio, capitalist ownership of the means of production is fully socialized. As Marx said, for capitalists the socialization of ownership would result in "capitialist communism" (Marx & Engels, 1988, p. 23). For him, the socialization of capital above all "... presupposes the development of the credit system, which concentrates together the inorganic mass of available social capital vis-a-vis the individual capitalist" (Vol. 3, p. 298). By credit system Marx includes not merely trade credit and banking, but also interest-bearing capital and share capital. When this was fully developed, he argued, "Capital, which is inherently based on a social mode of production and presupposes a social concentration of means of production and labour-power, now receives the form of social capital (capital of directly associated individuals) in contrast to private capital, and its enterprises appears as social enterprises as opposed to private ones" (Vol. 3, p. 567). For Marx and, we shall see, for MFT, "This is the abolition of capital as private property within the confines of the capitalist mode of production itself" (Vol. 3, p. 567).

Marx's general rate of profit is explicitly not a "simple average", but one which takes into account "... the relative weight which these different rates of profit assume in the formation of the average" (Vol. 3, p. 262). For Marx, as for MFT, the average emerges in competition as "... capital withdraws from a sphere with a low rate of profit and wends its way to others that yield a higher profit" (Vol. 3, p. 297).[8] For him, therefore, the general rate of profit is

established within the context of "total capital", the ultimate "fully-diversified" portfolio, where "... the movement in one sphere of production will cancel out the movement of another, [and] the forces mutually counteract and paralyse each other" (Vol. 3, p. 269).

Marx points out that as capitalism develops it becomes more sophisticated, and the general rate of profit, instead of simply emerging through competition, is *consciously calculated in advance* to reflect expected differences in rates of return on capital by building "compensating factors" into a "required return":

> "... as soon as capitalist production has reached a certain level of development, the equalization between the various rates of profit in individual spheres which produces the general rate of profit does not just take place through the interplay of attraction and repulsion in which market prices attract or repel capital. Once average prices and the market prices corresponding to them have been established for a certain length of time, the various individual capitalists become *conscious* that *certain differences* are balanced out in this equalization, and so they take these into account in their calculations among themselves. These differences are actively present in the capitalist's view of things and are taken into account by them as grounds of compensation" (Vol. 3, pp. 311–312).

Capital, particularly fixed capital, is not easily transferred from one sphere of production to another in the short-run, and "Experience shows ... that if one branch of industry, e.g. cotton, yields extraordinarily high profits at one time, it may bring in very low profits at another, or even run at a loss, so that in a particular cycle of years the average is more or less the same as in other branches" (Marx, Vol. 3, p. 311). In Marx's view, "Capital soon learns to reckon with this experience" (Vol. 3, p. 311), and adjusts the required return from particular investments to reflect the factors which experience shows influence the average returns. Thus, for him, the general rate of profit is not merely a *result* of competition, but also "... an actual *presupposition* of the capitalist mode of production" (Marx, Vol. 3, p. 275, emphasis added). In other words, the general rate of profit does not simply emerge from competition, but sets the framework within which competition takes place by becoming the *required* return *before* investment is undertaken or allowed to continue.[9]

The major pervasive factor highlighted by Marx is relative risk, clearly anticipating the descriptions of capitalism underlying the capital asset pricing model and other "factor models" of security returns. Consider the following remarks:

> "This idea ... that each particular capital should be viewed simply as a fragment of the total capital, and each capitalist in fact as a shareholder in the whole social enterprise, partaking in the overall profit in proportion to the size of his capital ... is the basis for the capitalist's calculations, for example ... capital investments that are exposed to greater risk, as in shipping ... receive compensation through increased prices ... [However,] ... [o]nce capitalist production is properly developed, and with it the insurance system, the risks are the same for all spheres of production ...; those more endangered simply pay higher insurance premiums and receive these back in the price of their commodities" (Vol. 3, p. 312).

As the subtraction of the cost of an insurance policy from an uncertain expected present value yields the present value of a certain equivalent, it is clear both that Marx was well aware of the capitalists' demand for a required return which compensated them for risk,[10] and that risk adjustments were determined within the context of capital as a social collective—in the context of the "capital market".

Although Marx does not specifically highlight systematic risk, his cotton example implies a major compensating factor taken into account is variation in returns in response to variations in the general level of economic activity.[11] For Marx, as for MFT, the argument is perfectly general: required rates of return are adjusted to take *all* relevant factors into account. For example, as Sharpe puts it, "A goal of investment analysis is to identify major *factors* in the economy and the *sensitivities* of the values of securities to changes in investors expectations about future levels of those factors" (1985, p. 184). Or, as Marx puts it, "... any circumstance that makes one capital investment less profitable and another one more so ... is invariably taken into account as a valid reason for compensation, without there being any need for the constant repetition of activities of competition in order to demonstrate the justification for including such motives or factors in the capitalist's calculations" (Vol. 3, p. 312). For MFT, multi-factor models of security returns merely presume competition between rational, utility-maximizing investors. For Marx, however, this is merely the external appearance of an underlying *social* process in which *all* of the "... grounds for compensation that make themselves mutually felt in the reciprocal calculation of commodity prices by capitalists in the different branches of production are simply related to the fact that they all have an equal claim on the common booty, the total surplus value, in proportion to their capital" (Vol. 3, p. 312–313). Grasping this is essential to understanding Marx's resolution of the transformation problem, the derivation of the general rate of profit from labour values, and in conceptualizing the social role of MFR from his perspective.

Marx's Resolution of the Transformation Problem

In Volumes One and Two of *Capital* Marx assumes that commodities sell at the value of the socially necessary labour time embodied in them and that profit equals surplus value. However, according to the labour theory of value, the rate of profit for individual enterprises should differ in line with differences in the organic composition of capital,[12] which contradicted both the demand of capitalists for an "equal return for equal capital", and the fact that in practice equal amounts of capital advanced did tend to return equal amounts of profit. Marx resolves this apparent contradiction by arguing that individual capitalists are compelled by competition to price commodities at their cost plus the general rate of profit, the ratio of *total* profit to *total* capital advanced. Let Si = the surplus value of firm i, Ci = the constant capital of firm i, and Vi = the variable capital of firm i, and r = the general rate of profit.[13] What Marx says is that *if* total profits equals total surplus value, the prices and profits of individual firms could still be "explained *in terms of* labour quantities" if the profit of every individual firm, Pi, were merely a share of total

surplus value, i.e. if for every firm $Pi = (Ci + Vi)r$.[14] If this were true, while only for firms with the average organic composition of capital would $Pi = Si$, the rate of return on every firm would equal r, the general rate of profit.

However, Steedman argues that "Marx's argument . . . is internally inconsistent [because] . . . he assumes that $S/(C + V)$ is the rate of profit but then derives the result that prices diverge from values, which means precisely, in general, that $S/(C + V)$ is not the rate of profit" (1977, p. 31). Steedman only formally defines $S/(C + V)$ in aggregate. However, his statement is only consistent with what Marx says if it is read as referring to the $S/(C + V)$ of the *individual* firm. As Marx says, when prices equal embodied labour value, the individual firm's $S/(C + V)$ equals its rate of profit, but when prices diverge from values it need not. Certainly, in Marx's theory the rate of profit of firms with non-average organic compositions of capital would be different from the rate of surplus value they *would* have earned if all commodities were consistently priced in terms of their labour value. However, for Marx this merely reveals an imperfection in capitalism, not an internal inconsistency in the labour theory of value. Steedman's problem clearly arises from the fact that he overlooks that for Marx the only way in which individual surplus value can be transformed into average profit is *socially,* so that what each individual capitalist secures ". . . is only the surplus-value and hence profit that falls to the share of each aliquot part [i.e. portion] of the total social capital, when evenly distributed, from the total social surplus-value or profit produced in given time by the social capital in all spheres of production" (Vol. 3, p. 258). In other words, the required return on the market portfolio.

However, Marx says that by shedding its individual character, capital faces two major problems. First, the introduction of large-scale production with machinery leads to the separation of ownership from management and, he implies, to the collective need to regulate the social relation between production (management) and investors. Second, he says, the collectivization of capital required for large-scale production gives rise to the need to regulate the social relations between fractions of capital. In Marx's theory, both of these social relationships are regulated by the general rate of profit.

The General Rate of Profit and the Social Relations Between Capital and Production

From the perspective of MFT productive investment is regulated by the required return, which must be equalled or bettered for investment to be undertaken or continued. This also appears to be Marx's view. As he says, for the capitalist enterprise, "The problem . . . and this is a minimum requirement, is to sell commodities at prices which deliver the average profit, i.e. at prices of production" (Vol. 3, p. 297). In other words, to earn at least the general rate of profit.

From Marx's perspective the need to collectively regulate production arises from the concentration of capital "on a massive scale" and its centralization "in a few hands". As he says, this ". . . would entail the rapid breakdown of capitalist production, if counteracting tendencies were not constantly at work alongside this centripetal force, in the direction of decentralization" (Vol. 3, p.

355). For Marx, the major counteracting tendency was the socialization of capital around the general rate of profit which, he says, "socially disciplines" production and transforms the "individual capitalist" into a social "functionary", a mere "manager" governed by the general rate of profit which provides a "barrier" to investment:

> "... in capitalist terms ... a certain rate of profit ... determines the expansion and contradiction of production, instead of the proportion between production and social needs ... Production comes to a standstill ... where the production and realization of profit impose this" .... "It is the rate of profit that is the driving force in capitalist production, and nothing is produced save what can be produced at a profit" (Vol. 3, pp. 367–368).

Predictably, for MFT the importance of the required return is also precisely the "decentralization" of investment decision-making which it allows.

In the "extensive and well-functioning" capital markets of MFT, financial securities should command a market price that "fairly" reflects their value in the context of the information available.[15] If so, investors can at any time sell them to meet current consumption needs in excess of current income or, conversely, invest surplus income. For MFT this is of fundamental significance for the organization of capitalism. It is only by *separating* the investment and consumption decisions that individual capitalists with differing consumption preferences can "... *cooperate* in the same enterprise and ... safely *delegate* the operation of that enterprise to a professional manager" (Brealey & Myers, 1984, p. 21, emphases added). For MFT this is the most important function the capital markets perform for capitalists.

On the one hand, it is only by co-operating in the financing of investments that the scale of production can be extended beyond the wealth of individuals. However, in doing so the capitalists appear to lose control because the formation of ever larger and more complex organizations necessitates the appointment of professional managers. On the other hand, capital markets provide the basis for retaining financial control by the enforcement of a simple rule. As Brealey and Myers say, the separation of ownership and management is "... the fundamental condition for the successful operation of a capitalist economy". With large, complex organizations "authority has to be delegated". But, if capital markets are extensive and well-functioning, "The remarkable thing is that managers of firms can all be given one simple instruction: Maximize net present value" against the required return (1984, p. 21). Marx also conceptualized share prices as expected dividends discounted by the required return (Vol. 3, p. 466).

Thus, Steedman's claim that "The "value rate of profit", used by Marx, is of no concern to capitalists, it is unknown to capitalists and there is no force acting to make it equal as between industries" (1977, p. 30) is erroneous. The general rate of profit understood as the required return of MFT is a concept very well known to capitalists. Thus, there are no grounds for saying that "... Marx's error lay in trying to determine first the rate of profit and then the ... "prices of production" ... " (Steedman *et al.*, 1981, p. 14). Certainly, prices and profits "... have to be treated *simultaneously* within the theory" (Steedman, 1981, p. 14), but this is precisely what Marx does. As we have seen, the general rate of profit is the *presupposition* of the functioning of capitalism.

Each firm is *required* to earn (or better) the general rate of profit before investment can be undertaken or continued.

Underlying the social relations between capital and production and capital and labour are the social relations within capital itself: "Capital runs through the cycle of its transformations, and finally it steps as it were from its inner organic life into its external relations, relations where it is not capital and labour that confront one another, but... capital and capital..." (Vol. 3, p. 135).

The Relations Between Fractions of Total Social Capital

For MFT the fundamental condition for holding fully-diversified portfolios is "efficient capital markets" where no-one makes "abnormal" gains or losses. Under MFT, all investors earn the required return. For Marx, the fundamental rule governing relations between individual capitalists is an "equal return for equal capital". For him, this rule arises from the collective need of capital to reap the benefits of competition. Competition is essential for the profitable development of production. But without the socialization of capital to pool what would otherwise be individual losses, and to reap collective gains from the "creative" destruction it unleashes, large-scale investment would be retarded. As Marx says:

> "As long as everything goes well, competition acts... as a practical freemasonry of the capitalist class, so that they all share in the common booty in proportion to the size of the portion each puts in. But as soon as it is no longer a question of division of profit, but rather of loss, each seeks as far as he can to restrict his own share of this loss and pass it on to someone else" (Vol. 3, pp. 361–362).

How is this potential conflict between fractions of capital resolved? Clearly, for the capitalist class as a whole the loss from the creative destruction wreaked by competition is unavoidable, but "... the loss is divided very unevenly..." (Vol. 3, p. 362). Similarly, the gain to the winners is also distributed very unevenly. Thus, Marx argues, only through the socialization of capital can the gains and losses from competition be divided evenly: "Compensation for the fall in the profit rate by an increase in the mass of profits is possible only for the total social capital..." (Vol. 3, p. 365). Clearly, gains and losses from competition can only be shared equally if all investors hold well-diversified portfolios.

In MFT investors manage the risk of their portfolios by holding varying amounts of fixed-interest securities. All investors get the "riskless" return plus a risk premium, the "excess return on the market", which depends only on the proportion of their portfolio invested in the market portfolio, and the proportion invested in "riskless" debt. Marx makes an identical distinction. As he says, although interest charges can be nothing other than a *quantitative* division of surplus, with the socialization of capital it comes to represent a *qualitative* division of the general rate of profit. For capitalists, Marx says, interest comes to represent the return to capital *itself,* "money breeding money", the "riskless" rate; and the residual represents "profit of enterprise", the "excess return on the market". However, for Marx this is mere appearance. In his view, interest arises from a transformation in the social

relations between fractions of capital: "Interest is a relationship between two capitalists, not between capitalist and worker" (Vol. 3, p. 506). For him, the emergence of this qualitative distinction signals the emergence of money capital as the dominant fraction of total capital, capital as *rentier,* which pre-empts a greater or lesser proportion of the general rate of profit according to fluctuations in its power in the capital markets (Vol. 3, pp. 483–484).[16]

With the separation of ownership from management, the qualitative distinction between interest and profit of enterprise is revealed for what it is, a mere quantitative division of the general rate of profit. Together, they represent the inherent property of capital to return the general rate of profit: "[The] Formation of joint-stock companies . . . involves . . . [t]ransformation of the actually functioning capitalist into a mere manager, in charge of other people's capital, and of the capital owner into a mere owner, a mere money capitalist. Even if the dividends that they draw include both interest and profit of enterprise . . . this total profit is still drawn only in the form of interest, i.e. as a mere reward for capital ownership. . ." (Vol. 3, p. 567). Total profit as "interest" is the general rate of profit, the required return on capital in general.

To summarize so far. There is a marked correspondence between the principles of MFT and Marx's analysis of the social relations of capital. If Marx's theory of surplus value is true, the required return will equal the average firm's rate of surplus value. However, it is widely believed that Marx provided no evidence for his labour theory of value. Certainly, Marx provides little evidence to support his analysis of the social role of the general rate of profit. How could he? When he was writing, the socialization of capital was only just beginning (Bryer, 1992*b*). However, in the first two parts of Volume Two of *Capital* he provides a very detailed analysis of the capitalist process of production, the significance of which appears to have been overlooked by accounting theorists.

For Marx's theory it is essential that although to the individual capitalist ". . . profit appears as an excess of the sale price of commodities over their immanent value", it remains ". . . true that the nature of surplus-value persistently impresses itself on the capitalist's consciousness in the course of the immediate production process . . ." (Vol. 3, p. 135). In other words, for Marx it is essential that capitalists *think* and *desire* economic income, but *see* and *pursue* surplus value. Thus, from Marx's perspective, we can hypothesize that the critical social role of accounting is to impress the immediate process of production, the generation and realization of surplus value, on both the consciousness of management and on the collective consciousness of capital. In short, if Marx's theory is an adequate description of capitalism the principles of conventional financial reporting should correspond to his labour theory of value . . . and they do, in remarkable detail, as we shall now see.[17]

Marx's Theory of Surplus Value and the Analytical Postulates of Modern Financial Reporting

At first sight Marx has little to say about accounting at all. The word is hardly ever used. He occasionally refers to "bookkeeping" in Volume Three (it is hardly

mentioned in Volume One). However, in Volume Two he describes bookkeeping as an *idealized representation,* an abstract conceptualization, of the capitalist process of production by which it is "registered and controlled":

> "By way of bookkeeping, which also includes the determination or reckoning of commodity prices (price calculation), the movement of capital is registered and controlled. The movement of production, and particularly of valorization—in which commodities figure only as bearers of value, as the names of things whose ideal value-existence is set down in money of account—thus receives a symbolic reflection in the imagination" (Vol. 2, p. 211).

The function of "bookkeeping" for Marx, therefore, is "...the supervision and *ideal recapitulation* of the process [of production, which] becomes ever more necessary the more the process takes place on a social scale" (Vol. 2, p. 212, emphasis added). Or, as the FASB puts it, "The financial statements of a business enterprise can be thought of as a representation of the resources and obligations of an enterprise and the financial flows into, out of, and with the enterprise—as a model of the enterprise" (1980, para. 76). We have suggested from Marx's perspective that the critical social role of accounting is to impress the generation of surplus value onto the consciousness of management and social capital. Compare the FASB's views that at the heart of the accounting model is "earnings", and the objective of MFR is to provide useful information to investors about "...the process by which cash expended on resources and activities is returned as more (or perhaps less) cash to the enterprise..." (1978, para. 44).

For Marx, "profit" arises from the production and sale of "...a commodity greater in value than the sum of values of the commodities used to produce it, namely the means of production and the labour-power...purchased...on the open market" (Vol. 1, p. 293). Thus, for him, and for conventional accrual accounting, "profit" is simply the "...increment or excess over the original value..." (Vol. 1, p. 251), or cost.[18]

Marx and accounting also agree that the fundamental characteristic of "capital" is that money is *capital* if, and only if, it is used to purchase commodities with the *objective* of making more money than initially invested. As Marx puts it, whereas in a system of "simple commodity production" the circulation of commodities takes the form commodity(C)–money(M)–commodity(C), in the capitalist system of production the circulation of commodities takes the form M–C–M', where M' equals the original money investment (M) plus the increase over the cash cycle: "Money which describes the latter course in its movement is transformed into capital, and, from the point of view of its function, already is capital" (Vol. 1, p. 248). For conventional accounting also, "capital" is money (or money-equivalent) advanced to an entity for the purpose of earning "profit", and to the extent that the expectation of profit disappears the capital is written-off (FASB, 1978).

Conventional accounting also agrees with Marx that if money-making is the objective of capital, conceptually it has no quantitative limits: "...the movement [is] endless..." (Vol. 1, p. 252), with potentially infinite repetitions of its circuit. The capitalist's "...aim is...the unceasing movement of profit-making" (Vol. 1, p. 254). Therefore, for Marx, as for conventional

accounting, "capital" is money deployed and constantly re-employed in a "going-concern" in pursuit of more money, and thus "Value . . . becomes value in process, money in process, and, as such, capital" (Vol. 1, p. 256).

Conventional accounting profit can be conceptualized as the long-run distributable cash flow in a postulated steady state (Bryer & Steele, 1990; Bryer, 1991*b*). The steady-state postulate is implied by Marx's concept of *simple reproduction*, where profits equal dividends in every future period.[19] As he puts it, "As a periodic increment in the value of the capital, or a periodic fruit borne by capital-in-process, surplus value acquires the form of a revenue arising out of capital. If this revenue serves the capitalist only as a fund to provide for his consumption, and if it is consumed as periodically as it is gained, then, other things being equal, *simple reproduction takes place . . . a mere repetition of the process of production, on the same scale as before. . .*" (Vol. 1, p. 711–712, emphasis added). For Marx, simple reproduction is the base case; growth is merely reproduction on an expanded scale.[20] Almost all of Marx's analysis of capitalist production assumed simple reproduction, ". . . both that commodities are sold at their values, and that the circumstances in which this takes place do not change" (Vol. 2, p. 109). Note, however, that Marx's concept of simple reproduction is not meant to imply that capitalism is in "equilibrium". It is merely a conceptual device to permit the analysis of reproduction through time.

We conclude that Marx shares MFR's conceptualization of the objective of accounting, the nature of profit and capital, and the going-concern and steady-state postulates. However, the correspondence goes much deeper. Fundamental to conventional accounting is the notion of accruals, the focus on the timing of recognition of "revenues" and "expenses" rather than cash receipts and outlays (FASB, 1985, para. 144). While Marx says little about the criteria capitalists use to recognize the realization of sales (although he frequently stresses the critical problem they face in "realizing" commodities), he has much to say about their recognition of expenses.

Marx on Product Costing: Constant and Variable Capital

A fundamental principle of accrual accounting is that costs "attach" to products or services. Paton and Littleton provide a classic rendition of the conventionally accepted relationship between accrual accounting and production:

> "When production activity effects a change in the form of raw materials by the consumption of human labor and machine-power, accounting keeps step by classifying and summarizing appropriate portions of materials cost, labor cost and machine cost so that together they become product costs . . . . The realization of revenue from sales therefore marks the time and measures the amount of (1) recapture of costs previously advanced in productive efforts, and (2) capture of additional assets (income) . . . . Inventories and plant are not "values", but cost accumulations in suspense, as it were, awaiting their destiny. In order to learn what costs have already met the test (recapture) and what costs still await the test, accounting assumes that acquisition costs are mobile and may be apportioned and regrouped, and that costs reassembled have a natural affinity with each other which identifies them with the group" (1940, pp. 13–14).[21]

This formulation is strikingly consistent with Marx's theory of surplus value, which also sees costs "attaching" to products through its distinction between "constant" and "variable" capital.[22]

According to the labour theory of value, on average the prices (exchange values) at which all commodities (raw materials, machines, buildings, consumables) sell is determined by the amount of *socially necessary labour time* required to produce them. Ineffective or inefficient labour, or the costs of wasteful production, would not be reflected in a commodity's value. However, whereas *labour* can add new value to a commodity, commodities used in production merely *transfer* their *cost* to the value of the commodity they co-produce. Marx formalizes this idea in his distinction between "variable" and "constant" capital:

> "The worker adds fresh value to the material of his labour .... On the other hand, the values of the means of production used up in the process are preserved, and present themselves afresh as constituent parts of the value of the product.... The value of the means of production is therefore preserved by being transferred to the product. This transfer takes place during the conversion of those means into a product, in other words during the labour process" (Vol. 1, p. 307).

> "That part of the capital... which is turned into means of production, i.e., raw material, the auxiliary material and the instruments of labour, does not undergo an alteration in value in the process of production. For this reason, I call it the constant part of capital, or more briefly, constant capital. On the other hand, that part of capital which is turned into labour-power does undergo an alteration of value in the process of production .... This part of capital is continually being transformed from a constant into a variable magnitude. Therefore,... variable capital" (Vol. 1, p. 317).

That Marx thought that in making this distinction he was describing standard capitalist accounting is suggested, for example, by his treatment of self-produced fixed assets, called here the "means of labour". In his view, where the "... means of labour are not changed into actual money, they are converted into *accounting money*; in short, they are used as exchange-values and the element of value that they add to the product in one way or another is precisely calculated" (Vol. 1, p. 952, emphasis added).

For both Marx and Paton and Littleton the cost of commodities used in production (including the means of production) are transferred to products in accordance with the cost of replacing the consumption of their "use-values" or "service potentials" in production. Or, as Paton and Littleton put it, "The flow of cost factors... needs to be appropriately divided between the pool of charges to be held back, deferred, and those representing elements from which the utility is yet to be fully exhausted" (1940, p. 17). This concept is central to conventional accrual accounting for inventories and fixed assets.

Marx on Accounting for Inventories

A widely-accepted principle of conventional accounting for inventories is that only those costs which are necessary to get a commodity to a particular state or location in the production process may be included in inventory. Thus,

non-production overheads are excluded from inventories (e.g. ASC, 1988, para. 17). This principle underlies Marx's distinction between "circulation" and production costs.

Marx notes that for capital to pass through its various stages takes time, both in production and in buying and selling commodities; that is, in "circulation". The gaps between them give rise to the need for inventories. According to the labour theory of value commodities sell at their value. No value is created during the time the capitalist "prowls around the market" (Vol. 2, p. 207). This time and the associated costs are Marx's "circulation costs". They do not add value to commodities, even though they are necessary. As he explains, although "Circulation is just as necessary for commodity production as is production itself, and thus the agents of circulation are just as necessary as the agents of production", according to the labour theory of value, "The circulation agents must be paid by way of the production agents" (Vol. 2, p. 205). Marx states his general principle:

> "The general law is that all circulation costs that arise simply from a change in form [from money into commodities or from commodities into money] of the commodity cannot add any value to it. They are simply costs involved in realizing the value or transferring it from one form to another. The capital expended in these costs (including the labour it commands) belongs to the *faux frais* of capitalist production. The replacement of these costs must come from the surplus product..." (Vol. 2, p. 226).

In distinguishing between circulation costs, including the costs of general administration (e.g. bookkeeping) which do not add value to the commodity, and production costs which do, Marx appears to define the *faux frais* as non-production overheads, and to argue that they should not be charged to inventory, but charged as an expense in the period incurred.[23] Conventional accounting agrees with him that selling and administration costs should not be charged to inventory (ASC, 1988, para. 20). Marx includes "buying costs" as part of circulation costs. However, his subsequent recognition of the fundamental principle that costs increase the value of a commodity only to the extent that they are necessary to get it to its current state or location, suggests he would agree with the corollary that "costs of purchase" should be charged to inventory.[24] This principle emerges clearly when he applies his categories to storage and transportation costs. Necessary storage costs are chargeable to inventory, he says, because "...their actual object is not the formal transformation of value, but the conservation of value which exists in the commodity as a product, as a use-value, and hence can be conserved only by conserving the product, the use-value itself" (Vol. 2, p. 217). Costs that are necessary to "conserve value" clearly maintain it in its current state. However, only "necessary" costs are chargeable because:

> "If the capitalist has transformed the capital he advanced in means of production and labour-power into products, into a certain mass of commodities ready for sale, and these remain in store unsold... [t]he expenditures that the conservation of this stock requires in buildings, additional labour, etc. form a positive loss. The eventual purchaser would laugh at the capitalist if he said: "I could not sell my commodity for six months, and it not only cost me so and so much in idle capital to maintain it for these six months, but also caused expenses x". "So much the worse for you," the

> buyer will say, "for next to you there is another seller whose commodity was finished only yesterday. Your commodity is evidently a white elephant, and probably more or less damaged by the ravages of time. You must therefore sell cheaper than your rival" .... Thus in so far as the formation of a stock is a hold-up in circulation, the expenses occasioned by it add no value to the commodity" (Vol. 2, pp. 222–223).

Thus, it follows, conversely that in so far as storage expenses are necessary, are an extension of the process of production, "... production processes that are simply continued in the circulation sphere..." (Vol. 2, p. 214), they do add value and are chargeable to inventories.

The same principle determines the treatment of transportation costs. As Marx says, although "The quantity of products is not increased by their transport... the use-value of things is realized only in their consumption, and their consumption may make a change of location necessary, and thus also the additional production process of the transport industry". Thus, he concludes, as does conventional accounting that, being necessary to the commodity's location, "The productive capital invested in this industry thus adds value to the products transported, partly through the value carried over from the means of transport, partly through the value added by the work of transport" (Vol. 2, pp. 226–227).

Marx on Depreciation

Marx defines "fixed capital", the fixed assets of conventional accounting, as that "... part of the constant capital, the actual instruments of labour (e.g. machines), [which] serve continuously throughout a greater or smaller number of repetitions of the same production process, and for this reason give up their value to the product only bit by bit" (Vol. 2, p. 133). In Volume One Marx outlines the general principle of conventional depreciation accounting that the cost of a fixed asset must be apportioned to the products it helps to produce:

> "If we... consider the case of an instrument of labour during the whole of its period of service... we find that during this period its use-value has been completely consumed, and therefore its exchange value completely transferred to the product. For instance, if a spinning machine lasts for ten years, it is plain that during that working period its total value is gradually transferred to the product of the ten years" (Vol. 1, p. 311).

Marx later points out that when he says the "value" of the means of production is transferred to the product, he means the historical *cost*: "The maximum loss of value the means of production can suffer in the process is plainly limited by the amount of original value with which they entered into it..." (Vol. 1, p. 313).

Some Marxist economists appear to believe that Marx simplistically assumed "... linear value [i.e., straight-line] depreciation..." (Steedman, 1977, p. 138). However, like conventional accrual accounting (e.g. Baxter, 1971), Marx recognizes that from the capitalist point of view the method chosen should reflect the pattern of use-values delivered, the pattern of other costs, and technological and economic obsolescence:

> "...the part of its value that has to be reproduced daily grows greater the more rapidly the machine is worn out..." (Vol. 1, p. 377). "The amount of deterioration suffered by a machine does not by any means exactly correspond to the length of time it has been in use" (Vol. 1, p. 527).
>
> "Both in the case of the machine and of the tool, we... [must]...allow...for their average daily cost, that is for the value they transmit to the product by their average daily wear and tear, and for their consumption of auxiliary substances such as oil, coal and so on..." (Vol. 1, p. 510).
>
> "...in addition to the material wear and tear, a machine also undergoes what we might call a moral depreciation. It loses exchange value, either because machines of the same sort are being produced more cheaply than it was, or because better machines are entering into competition with it. In both cases, however young and full of life the machine may be, its value is no longer determined by the necessary labour-time actually objectified in it, but by the labour-time necessary to reproduce either it or the better machine" (Vol. 1, p. 528).
>
> "The total value that the means of labour add to the product is determined by the average length of their life; they lose value because they lose use-value, not only in the time during which they are functioning, but also in the time during which they are not" (Vol. 2, p. 202).

Marx develops his notion of depreciation in Volume Two into a concept of "rent": "The instruments of labour—buildings, machinery, etc.—therefore figure...in the means of production into which the constant capital advanced [is] transformed, as if they were simply hired on the market in return for a weekly payment" (Vol. 2, p. 134). The notion of depreciation as a weekly rent invites a conventional accrual accounting interpretation. On the one hand, competition would ensure that each unit of service potential commanded the same rental. On the other hand, the rent charged for the service potentials of a machine must at least recover both their initial cost and all other costs associated with their provision. Thus, to calculate the necessary constant rental per unit of service potential to recover the total costs associated with providing the services of a fixed asset requires that the initial and other costs be allocated over its useful life to achieve this result. This is the fundamental principle of conventional depreciation accounting, that the method of allocation selected should "result in a constant total charge per input unit" (Baxter, 1971, p. 39). Consistent with this interpretation is Marx's treatment of repairs:

> "Let us assume that his [the capitalist's] fixed capital [of £4,000] has to be renewed in ten years. Each year, then, he amortizes 1/10 = £400.... In so far as repairs are necessary, and these do not exceed the average amount, they are simply capital invested at a later date. We can consider the matter as if he had allowed for all the repair costs when he assessed the value of his invested capital, in so far as this enters into the annual commodity product, so that these are included in the one tenth amortization" (Vol. 2, p. 198).

What Marx appears to be saying is that straight-line depreciation is appropriate if repair costs are constant on "average"; but, more generally, repair costs should be conceptualized as part of the total cost of the fixed capital over its economically useful life, which should be allocated equally to equal annual commodity products. This general principle is eventually stated by Marx:

> "... the ... *means of labour* ... gives up value to the product in proportion to the exchange value it loses *together with its use-value*. The extent to which the value of such a means of production is given up or transferred to the product that it helps to fashion is determined by an average calculation; it is measured by the average duration of its function, from the time that it enters the production process as a means of production to the time it is completely used up, is dead, and has to be replaced or reproduced by a new item of the same kind" (Vol. 2, p. 237, latter emphasis added).

That is, the depreciation charge should equal the proportion of the initial cost of the use-values available over its economically useful life that are consumed in each period: "... the proportion in which it gives up value is always in inverse ratio to the overall duration of its function" (Vol. 2, p. 238). However, this does not imply the straight-line depreciation is always required. Later on, Marx returns to the problem of depreciation and the "special costs of maintenance" which arise from fixed capital (Vol. 2, p. 252) to state the principle more clearly. As he says:

> "If the value of fixed capital is £10,000, and its overall life is ten years, then this £10,000, when after ten years it is completely transformed into money, replaced only the value of the original capital investment, and does not replace the capital or labour newly added in between times for repairs. This is an additional component of value, which is not advanced all at once, but rather according to need, and its various times of advance are by the nature of the case accidental" (Vol. 2, p. 254).

By "accidental" Marx means that repair costs occur over the life of the fixed capital according to a randomly generated, but often markedly uneven, distribution:

> "... the more [a machine] passes beyond its middle years, and thus the more that normal wear and tear mounts up, and the material it is made of becomes worn out and weak with age, the more frequent and serious becomes the repair work needed to keep the machine going until the end of its average life; just as an old man has more medical expenses than a man in the prime of life, if he is not to die before his time" (Vol. 2, p. 254).

In fact, as Marx says, the expected cost of repairs over time partly determines the machine's economically useful life:

> "The transfer of value through the wear and tear of the fixed capital is calculated over its average period of life, but this average period it itself calculated on the assumption that the additional capital required to keep it in working order is continuously advanced" (Vol. 2, p. 255).

On the basis of the expected incidence of repairs, "This average expenditure is distributed over its average life and added in correspondingly aliquot parts to the price of the product, and this is how it is replaced in the product's sale" (Vol. 2, p. 255). It follows that the initial cost should be correspondingly allocated so that the total cost of each unit of use-value is equal. For example, *only if* repair costs are constant is straight-line depreciation appropriate:

> "... in many lines of business it is customary to calculate the repair costs

> in conjunction with the actual wear and tear of the fixed capital, in the following way: If the fixed capital advanced is £10,000, its life fifteen years, then the annual depreciation is £$666_{2/3}$. If the depreciation is now calculated over ten years only, then instead of £$666_{2/3}$, £1,000 is added annually to the price of the goods produced to compensate for the wearing-out of the fixed capital; i.e. £$333_{1/3}$ is reserved for repairs etc.... This, then, is the amount spent on repairs, on average, so that the fixed capital may last for fifteen years" (Vol. 2, pp. 255–256).

Marx also clearly distinguishes repairs from "renewal" or "replacements", but recognizes with conventional accounting that in practice the "... boundary between what is repair and what is replacement, between costs of maintenance and renewal, is a more or less shifting one" (Vol. 2, p. 257).

Marx uses his conceptualization of depreciation to expose the "vulgar economics" of Adam Smith. As we shall see, in doing so Marx, in effect, provides us with a very powerful theoretical critique of economic income-based depreciation. We turn now to examine his analysis of Adam Smith before applying it to some well-known marginalist rationalizations of conventional accounting.

Marx's Critique of Adam Smith

From the perspective of the labour theory of value, profit arises in the producton process through the exploitation of labour, and is realized through sale of the commodities produced. Thus, the distinction between fixed and circulating capital only arises within productive capital, and relates only to the different way in which capital enters the value of the finished product during the process of production. When the product is finished it circulates as commodity capital and, when sold, as money capital. During production, fixed capital enters the value of the product "bit by bit" through depreciation, and these bits circulate with the products. They are recovered on their sale, whereas the remaining value of the fixed capital continues to exist in the productive sphere. Circulating capital, on the other hand, enters the value of the product completely during production and has to be repeatedly replaced in full from the product's sale. When capital is transformed into commodities or money, the distinction between fixed and circulating capital is irrelevant. It then becomes simple "capital of circulation" (Vol. 2, p. 271)—either commodities with market value or money.

Although in the early parts of his work Smith adheres to the labour theory of value, and explains the origin of surplus value as unpaid labour, Marx points out that he later contradicts this by failing to distinguish between constant and variable capital. Smith defines capital as "fixed" when it "stays with" the employer, as opposed to circulating capital which he defines as commodities which "leave" the employer. While all that circulates in Smith's conception is goods and money, in Marx what circulates is value in various forms. Smith totally ignores the element in commodity values represented by depreciation. By this failure to distinguish constant and variable capital in his analysis of production, Marx shows Smith abandoned his initial commitment to the labour theory of value and its explanation of the origin of profit.

In fact, later in his work Smith directly contradicts himself by claiming that capital is the origin of profit (Vol. 2, p. 276). For Marx, this constituted his major "blunder":

> "...the whole erroneous explanation that fixed capital makes a profit by remaining in the production process, while circulating capital makes a profit by leaving this and circulating, permits the similarity of form that variable capital and the fluid component of constant capital have in the *turnover* to conceal the basic difference that they have in the *valorization process* and the formation of surplus-value, and in this way the whole secret of capitalist production is still further obscured. The inclusive characterization of both forms as circulating capital abolishes this fundamental distinction, and this was carried still further by later economists, who took the contrast between fixed and circulating capital as the basic and sole distinction, instead of distinguishing between variable and constant capital" (Vol. 2, p. 278).

Marx's concern was that by not distinguishing constant and variable capital the danger exists that, as with Adam Smith, attempts will be made to account for the profit "earned" by fixed capital and circulating capital. In other words, from the perspective of this paper, Marx's fundamental criticism of Adam Smith's definition of fixed capital is that, apart from being inconsistent,[25] by adopting it he is unable to provide a logical basis for conventional depreciation accounting. Although he sees the need, he is unable to define the concept underlying conventional depreciation because for Smith the value of a product is defined "ultimately" as the sum of wages and profit: "Wages, profit, and rent, as the *three original sources* of all revenue as well as *of all exchangeable value*" [Marx's emphasis]" (Vol. 2, p. 439). To the obvious objection that, if the production process is to continue, the value of the product must also include the cost of the means of production (materials, fixed assets, etc.), he merely replies that the prices of the means of production themselves arise from the wages paid and profit arising from their production, and so on *ad infinitum* to the "original" products derived only from labour.

However, as Marx pointed out, even if such products existed, conceptualizing the sources of the value of a product as "revenues" to labour and capital is impossible. For Marx, attempting this was the "...high point of Smith's stupid blunder...": "...after he has derived revenues from value, he proceeds in the reverse direction—and this remains the predominant idea in his work—and makes these revenues, instead of just "component parts", into "*original sources* of all exchangeable value", thereby throwing the door open to vulgar economists..." (Vol. 2, p. 449). If the total value of a commodity is determined by "adding together" the value of its "revenues", the "...question arises: how can we determine the value of each of these revenues from which the commodity value is supposed to derive?" (Vol. 2, p. 459). It is clearly necessary to do this to have a concept of depreciation. While wages are measurable, "...as for surplus-value, or in Adam Smith's case its two forms, profit and rent, how are these to be determined? Here we are left with empty prattle" (Vol. 2, p. 459). Marx concludes: "A fine kind of economic science that is, which declares it impossible to resolve the necessary price into its simplest elements" (Vol. 1, p. 738). In other words, a fine kind of economic science which declares depreciation accounting impossible. As we shall see

in the final section, economic income theory also starts from "revenues" and attempts to conceptualize depreciation as the decline in their present values, and declares the task impossible.

To sum up. Marx's critique of Adam Smith is essentially that, by assuming capital as the origin of profit, he is unable to explain how the cost of fixed assets is recovered through depreciation. In effect, Marx shows, in Smith's worldview conventional depreciation accounting simply does not exist. We turn, finally, to show that this gap also exists in the influential marginalist rationalizations of conventional accounting provided by Mattesich (1964), Ijiri (1967) and Thomas (1974).

Conventional Depreciation Accounting: an Achilles Heel of Marginalist Accounting Theory

According to Mattesich (1964), the principles and practices of conventional accounting can be axiomatized as a series of "assumptions", and eventuallly hypotheses, "... concerned with the quantitative description and projection of the income circulation and of wealth aggregates..." (p. 19). Of the 18 assumptions he lists, Mattesich focuses on "... valuation, the central theme of accounting, ... a procedure by which numerals are assigned to objects or events according to rules ... in order to express preferences with regard to particular actions" (1964, p. 144). He means conceptualizing the objective of accounting as providing information with predictive ability "... for "decision-making" purposes" (1964, p. 166). Although Mattesich foresees practical problems in forecasting future income flows, he accepts the basic notion of economic income "... that it is income which must be interpreted as derivative of the wealth function, not vise versa" (1964, p. 24). Thus, although he accepts that the marginalist theory of value is "beset with embarrassing problems", in his view economics is the "master discipline" of accounting and its theory of value "... so well entrenched in modern economic thought that we cannot consider doing without it" (1964, p. 160). So well entrenched in Mattesich's mind, in fact, that he interprets conventional cost-based depreciation accounting as a "distortion" of the cost basis, a "concession" to the economic theory of value, and *not* as the systematic allocation of cost, a concept he never mentions.

> "The fundamental principle of traditional accounting for evaluating assets is known under the term cost basis. In its crudest form the underlying hypothesis identifies the value [sic] of an asset item with the cost (or price) paid for it at the date of acquisition. The version encountered in actual practice shows several refinements or, better said, concessions. It takes into consideration an assumed decline in value [sic] due to utilization, depletion, obsolescence, etc., through periodically cumulative depreciation allowances on many fixed assets..." (Mattesich, 1964, p. 161).

In other words, for Mattesich conventional depreciation accounting is merely a crude form of economic income accounting. Ijiri (1967) also attempts to provide an axiomatic foundation for conventional accounting from within the

framework of marginalist economics. He also unquestioningly accepts "... the basic idea behind the Hicksian concept of income[,] ... making income a derivative of assets" (1967, p. 73). He advances the marginalist notion that the source of profit is "utility differentials", the money equivalent of the difference between the "... personal pain and pleasure which give rise to the concept of values". Although Ijiri stresses individual subjectivity as the foundation of value, to make the scheme at all workable clearly requires the assumption that these utilities can be "... attributed to goods as if they were intrinsic properties of the goods" (1976, p. 38). Thus, like Mattesich, for Ijiri "valuation" is a causal hypothesis linking the money sacrifice required to acquire commodities (a surrogate of disutility) with the expected monetary benefit from selling commodities (a surrogate of utility). While this framework is claimed to provide a conceptual foundation for accounting "as it is", or at least "... approximates practices in conventional accounting" (1967, p. 85), it has the unfortunate consequence of ruling out conventional depreciation accounting as "illogical".

As Ijiri moves from the simple world of one cause producing one effect "quite complicated problems" arise (1967, p. 58). In fact, from within the marginalist perspective multiple causality, intrinsic to the very notion of fixed assets, makes "rationally" allocating costs to products impossible. He considers the problem posed for his theory by an investment of $5 in an asset (Ge) which produces two commodities, one (Ga) which sells for $6 and the other (Gb) which sells for $4. Ijiri asks, "... the sacrifice value of Ge is $5, but what are the sacrifice values of Ga and Gb?" (1967, pp. 59–60). He concludes that "Unfortunately, there is no logical reason why the $5 should be allocated in a particular way". Although his commitment to the economic income perspective suggests "The only convenient bases of allocation that exist within this causal network are the benefit values of Ga and Gb...", he accepts that from his point of view there is no logical reason why they should be used, "... since the sacrifice value and the benefit value represent two entirely different aspects of the goods..." (1967, p. 59). In short, wth multiple causality the utility of the inputs is simply not traceable to the utility of the outputs. Thus, Ijiri drops the whole topic of depreciation accounting by assuming the problem out of existence. Multiple causality is abolished (Ijiri, 1967, p. 90)! Although Ijiri's objective is to provide a conceptual foundation for conventional accounting, by defining profit as the difference between the monetarized utility of commodities produced with a fixed asset and the monetarized disutility of producing that commodity, he is forced to conclude that any form of depreciation accounting is inherently "arbitrary" (1967, p. 90), and presumably *ought* not to exist. Precisely the conclusion drawn by Thomas (1974) from, perhaps, the high-point of this endeavour to derive an adequate descriptive theory of conventional accounting from marginalist economic theory.

Thomas focuses on depreciation accounting as the critical test of the logic of accrual accounting. In doing so he clearly reveals the inability of the economic income perspective to even describe it. For him the only reality is discounted cash flows, and "... the only allocation approaches that offer any hope of ... avoiding arbitrariness ... base amortization calculations on the

discounted future cash-flow (or revenue) contributions to the firm" (1974, p. 12). From this perspective, the notion of conventional depreciation accounting as the allocation of *cost* to the consumption of service potentials simply does not exist. Like Adam Smith before him, for Thomas the services to be allocated become "... perceived as *contributions* to the firm's cash flows, revenues, or cost savings" (1974, p. 11, emphasis added)! In other words, Thomas quite erroneously suggests that conventional depreciation accounting attempts to allocate the *revenue* co-produced by fixed assets to the service potentials consumed. For Thomas the mere existence of fixed assets, of "jointness" (or multi-causality), "... renders arbitrary any attempt to determine the contributions of individual inputs to output" (1974, p. 16). Hence, for him, the central flaw in conventional accrual accounting is simply that from the economic income perspective "... there is nothing in the external world for allocations to approximate" (Thomas, 1974, p. 3)! In the minds of prominent and influential accounting theorists, conventional cost-based accrual accounting simply does not exist!

We conclude that, judged against the endeavours of the marginalists to describe conventional depreciation accounting, Marx's labour theory of value is clearly superior. However, not only does Marx provide a theoretically coherent description of MFR and MFT, because he describes them in the context of the fundamental, undeniable social realities of capitalism—the social relations between collective capital, production and labour—his framework also provides a basis for explaining their functioning. The relevance of Marx to accounting scholars is, therefore, not merely as a major contributor to the history of economic, political, philosophical, historical and sociological thought, nor simply as an accounting theorist. Above all, the relevance of his work for accounting scholars is that it provides a theoretical framework which may allow us to understand better and explain contemporary developments in the regulation and practices of financial reporting. Many of these have proved puzzling to accounting scholars. Major examples in the UK are the introduction of mandatory current cost accounting in the 1970s, and the encouragement given to firms in the 1980s to write-off purchased goodwill against equity reserves rather than amortize it through the profit-and-loss account. We will conclude by briefly outlining how Marx's framework can be used to help explain these developments.

The Contemporary Relevance of Marx's Framework

From Marx's perspective a key to understanding developments in modern financial reporting is their role in furthering or hindering the *collective* interest of investors. This powerful interest is invariably overlooked in the explanations of accounting scholars (Bryer, 1991*b*). From the marginalist perspective, the introduction of current cost accounting is almost universally dismissed as an ultimately unsuccessful "experiment" in economic income accounting of little relevance to investors (e.g. Tweedie & Whittington, 1984). However, from Marx's perspective, the urgent appearance and implementation of current cost accounting in the UK in the early 1970s can be explained as a response to the collective need of investors to encourage and monitor the large-scale

divestment from UK manufacturing industry which occurred following the first oil shock in 1973, to increase the rate of return on the capital which remained (Bryer & Brignall, 1986). With the global expansion of investment in manufacturing industry in the 1960s, raw material prices rapidly increased and the UK's ageing manufacturing industry became increasingly vulnerable to competition from more-productive industries in Europe and Japan. As Marx pointed out, in words which perfectly describe the history of the oil crisis of the 1970s and its consequences for UK manufacturing industry, "...the production and increase of the portion of constant capital that consists of fixed capital, machinery etc. may run significantly ahead of the portion consisting of organic raw materials, so that the demand for these raw materials grows more rapidly than their supply, and the price therefore rises". In Marx's view, large increases in raw material costs lead to "convulsions" and "...devaluing capital in various ways" in the less-productive firms and industries (Vol. 3, pp. 213–214). In other words, widespread plant closures. As shown in detail elsewhere, Marx's analysis of the effects of price increases on the rate of return on capital, and the "convulsions" they produce, is fully consistent with the focus on operating profit and capital maintenance adjustments in the current cost accounting systems which were imposed (Bryer & Steele, 1990; Bryer, 1992*a*).

Another example where understanding developments in financial reporting in the social context provided by the collective interests of investors may prove fruitful is the case of goodwill accounting in the UK. Within conventional accrual accounting "goodwill" arises as an accounting asset only when one enterprise purchases another and has to pay not only for its net assets, but also for some or all of its expected future profits. In the wake of the restructuring of UK manufacturing industry triggered by the oil crisis, takeovers and purchased goodwill increased to record levels (Higson, 1989). Initially, the UK authorities advocated the conventional, and internationally recognized, accounting solution: goodwill was to be capitalized and amortized through the profit-and-loss account as the purchased profits were earned. However, the standard on goodwill accounting which emerged allowed and encouraged UK companies to write-off purchased goodwill against equity reserves, and this became dominant practice. How is this clearly deviant development to be explained? While some have suggested it arose from theoretical confusions about the purpose of financial reports (e.g. Grinyer *et al.*, 1990), a detailed analysis of the development of the standard shows that the economic income approach to goodwill accounting was clearly and deliberately introduced, and distinguished from the conventional approach, to allow the immediate write-off option (Bryer, 1990). How could this have been in the collective interests of investors? The adoption of current cost accounting dramatically increased the dividend payout ratios of many UK manufacturing companies to the point where some commentators felt dividends were difficult to "justify" to the public at a time when incomes were tightly controlled (Gibbs *et al.*, 1976). During the 1980s UK payout ratios reached record levels, and on a current cost basis clearly involved paying dividends from capital (ASC, 1986, fig. 1). Arguably, therefore, the UK authorities may have felt that further increasing payout ratios by insisting on the amortization

of large amounts of purchased goodwill could have political costs for investors.

Concluding Remarks

The choice between Marx and marginalism as the foundation of accounting theory can only be based on their ability to describe and explain the functioning of accounting. For many years, marginalism has provided the unquestioned paradigm for most accounting researchers (e.g. Beaver, 1989). However, there is a wide consensus that their considerable efforts have been remarkably unfruitful (e.g. American Accounting Association, 1977; Hakasson, 1978; Burton & Slack, 1991).

With some notable exceptions, accounting research from the perspective of political economy has hardly begun. While much more research using this framework is required, on the basis of its ability to describe and explain MFR and MFT, Marx's labour theory of value has been unjustifiably neglected as the possible foundation of a theory of accounting to capitalism. This neglect may, perhaps, be partly explained by the fact that Marx and the marginalists offer such radically different explanations of the origin of profit. Accepting that Marx's labour theory of value describes and explains conventional accounting implies, or is at least consistent with, acceptance of the hypothesis that the origin of profit is surplus value. While some, perhaps even many, accounting scholars may continue to neglect it for this reason, the correspondences between Marx, MFR and MFT identified in this paper should also be of interest to political economists, and to social scientists more generally. In other words, from Marx's perspective the concepts and practices of conventional accounting and finance are not simply reflections of the social relations of capital, they are also mirrors in which those relations are revealed for analysis and critique.

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Notes

1. The focus for this study are the first three volumes of *Capital,* universally acknowledged to represent his most important contributions to political economy. As a new reading is proposed, and so few accounting scholars read Marx, these works are extensively referenced in support. Although the quotations are obviously selective, they are claimed to be representative. Within the limitations of one paper it is clearly not possible to do full justice to the complexity and subtlety of such an encyclopedic thinker and writer.
2. Moves to extend the disclosures in financial reports (e.g. of cash flows) do not weaken this claim as they supplement rather than replace the focus of the existing system on profit calculation. Following Mattesich (1964) and Ijiri (1967), cost-based accrual accounting is

assumed here to be sufficiently pervasive to justify the title "conventional" for analytical purposes.

3. It is not suggested that Marx invented MFT! Just that Marx and MFT both accurately describe certain aspects of the functioning of capitalism, a fact which appears to have been wholly ignored. While, *prima facie,* this correspondence may seem improbable, from Marx's perspective the capitalists' grasp of the appearance of reality is a functional necessity for capitalism to survive.
4. A detailed critique of Marxist economic literature is not attempted in this paper. However, Steedman's work is considered in some detail later because, as Mandel puts it, Steedman's book, *Marx after Sraffa* (1977), is widely considered a "watershed" in the debate by forcefully arguing that the accumulated inconsistencies necessitate scrapping Marx's value theory (1984, p. xi).
5. These concepts are analysed in detail later. From the perspective of conventional accrual accounting they refer, respectively, to total non-labour product costs, labour product cost, fixed assets and current assets.
6. A previous version of this paper shows that Marx also provides a conventional analysis of accounting for current costs (Bryer, 1992*a*).
7. The ability to describe conventional depreciation accounting is critical because its practice is pervasive, and large-scale production with fixed assets is an essential feature of modern capitalism.
8. As we shall see in some detail later, in all this analysis Marx postulates "simple reproduction", or "steady state". Thus, for him, profits equal dividends in every future period, and the accounging rate of return on capital (profit/total capital advanced) equals the economic return (dividends/capitalized value of expected dividends). Under simple reproduction the marginal cost of capital and the required return are equal.
9. For both MFT and Marx the central mechanism to ensure this demand is met is competition. As both the result and presupposition of itself, the notion of "competition" must be expanded to include social mechanisms in addition to naked economic rivalry to explain the origin and functioning of "capital in general", as Marx well understood (cf. Heinrich, 1989). The potential role of MFR in enforcing the required return, and in its formation, is ignored by both Marxists and MFT. However, it is argued later that Marx's analysis of the capitalist process of production provides a conceptual framework within which they may be explored.
10. The cost of the insurance policy as an annualized return can be added to the riskless interest rate to give a risk-adjusted return.
11. Consider also his comment in the Appendix to Volume One that "Because of... [uncontrollable external factors]... each process of production entails a risk for the values introduced into it... Capital protects itself against such risks by association. The immediate producer who works with his own means of production is subject to the same risk..." (Marx, Vol. 1, p. 986). By "association" Marx elsewhere means "... the credit system and the forms of association related to it, e.g. joint-stock companies" (Vol. 2, p. 433). Thus, he appears to be saying that capital "protects" itself against specific risk by diversification through joint-stock companies and the credit system.
12. The ratio of "constant" to "variable" capital. The centrality of these concepts in conventional accrual accounting is demonstrated later.
13. See note 5 for definitions of these terms.
14. The fact that the constant capital of one firm contains the profit of the firm from which it is obtained causes no problems. As Marx says, "... if the sum of cost prices of all commodities in a country is put on one side and the sum of profits or surplus-values on the other, we can see that the calculation comes out right" (Vol. 3, p. 260). Steedman suggests that Marx is "incorrect" about this (1977, p. 32). To see that Marx is right consider, for example, two firms, one of which produces the constant capital for the other:

$$r = \frac{S1 + S2}{C1 + V1 + C2 + V2}$$

$$C1 = (C2 + V2)(1 + r)$$

$$= C2 + C2r + V2 + V2r$$

Thus,
$$r = \frac{r(C2 + C2r + V2 + V2r + V1 + C2 + V2)}{C2 + C2r + V2 + V2r + V1 + C2 + V2}.$$

15. The descriptive validity of the efficient market hypothesis (EMH) is not at issue here.

However, it should be noted that speculative bubbles and crashes do not prove that the capital markets are informationally inefficient for capitalists. Only evidence of significant wealth transfers from or between investors as a class would seriously question the EMH (cf. Sharpe, 1985).

16. An early illustration of the potential social and economic power of the *rentier* class was the "Great Railway Swindle" of 1845–1847 (Bryer, 1991*a*).
17. From Marx's perspective it is predictable, therefore, that only when capital became socialized in the UK in the late nineteenth century would investors demand and receive published reports based on cost-based accrual accounting, and they did (Bryer, 1992*b*).
18. The extension of Marx's usage of "value" to "cost" will be justified later.
19. Throughout Volumes One and Two of *Capital* Marx assumes that prices equal labour values and therefore that surplus value equals profit. Only in Volume Three does he allow prices to diverge from labour value, but recall that for the average firm and in total for Marx profits still equal surplus value.
20. The significant conclusion drawn by Marx is the direct inference from conventional accounting that only profits defined as constantly distributable dividends are relevant for enterprise valuation (Bryer & Steele, 1990): $Pt = [At - A_{t-1}] - [Lt - L_{t-1}] = Et - E_{t-1}$. Where At = total assets, Lt = total liabilities, Et = net equity, and Pt = net profit attributable to investors before dividends at time t. Thus, $Pt = Dt + NAt - NAt - 1$, where Dt = the dividends paid in t, and NAt = the historical cost of net assets in t after dividends. Assume a firm commences operations with net assets of NAO at the end of $t0$, and ends it life with NAT. If we sum and average the components of Pt over T years we get:

$$\frac{1}{T}\sum_{t=1}^{T} Pt = \frac{1}{T}\sum_{t=1}^{T} Dt + \frac{1}{T}\sum_{t=1}^{T} [NAt - NA_{t-1}].$$

As
$$\frac{1}{T}\sum_{t=1}^{T} [NAt - NA_{t-1}] = \frac{\text{NAT} - \text{NAO}}{T},$$

and, in steady state, NAT = NAO, we get:

$$Pt = \frac{1}{T}\sum_{t=1}^{T} Dt.$$

Compare this with Marx's view that "... even in the case of simple reproduction, all capital, whatever its original source, is transformed into accumulated capital, or capitalized surplus value. But in the flood of production the total capital originally advanced becomes a vanishing quantity (*magnitudo evanescens* in the mathematical sense), in comparison with the directly accumulated capital, i.e. the surplus value or surplus product that is reconverted into capital" (Vol. 1, p. 734).

21. Paton and Littleton's work is widely recognized to have been "... one of the most important contributions to financial accounting of the twentieth century" (Beaver, 1989, p. 3), "an outstanding representative of its kind" (Ijiri, 1980, p. 620).
22. Some might be tempted to suggest that this correspondence could be explained as the result of a shared conceptualization of production as a physical process. However, although it might be argued that MFR rationalizes its conventions this way, we have seen that Marx conceptualizes the capitalist production process and the creation and distribution of value as a system of social relations, a point which some Marxists have stressed by proposing to rename Marx's theory the "value theory of labour" (Elson, 1979). While this understanding of Marx is accepted, his terminology is retained.
23. Note that Kaplan's (and others') argument for including non-productive overheads in product costs, and for allocating production overheads using various activity bases other than labour time, for strategic management decision-making purposes, is irrelevant to the problem of inventory valuation for financial accounting purposes, as he accepts: "As long as the split of costs [for labor, materials purchases, and factory overhead] between goods sold and goods still in stock is fairly accurate ... the needs of financial reports will be met" (1988, p. 62). Marx also argues that capitalists will ruthlessly minimize total product costs.
24. Cost of purchase includes only those costs necessary to bring the commodity to its current state and location, including the purchase price, taxes, "transport and handling costs and any other directly attributable costs..." (ASC, 1988, para. 18). Thus, the general management costs of "prowling around the market" would not be included.
25. As Marx shows, using his definitions, all the capital advanced in mining would be "fixed" as it does not physically "leave" the mine-owner when the product is sold; similarly, for Smith seed corn retained from production would be fixed capital because, physically, it never leaves the farmer, whereas purchased seed corn would be circulating capital!

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