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## LESSONS FOR ACCOUNTING MEASUREMENT FROM TRANSACTION COST ECONOMICS

Many theoretical statements in support of the use of current market values have been produced over the years. Pressure to replace historical cost accounting rules with current values has in fact arisen over the past century whenever general price levels have risen materially. In Britain, recent studies supporting the use of current market values have been published by Whittington (1983), by Tweedie and Whittington (1984), and by Edwards, Kay and Mayer (1987). These three studies relied on the presumption that market forces tend towards competitive equilibrium, so that market prices can be identified or simulated for all the assets of the entity. There has also been rising pressure to show liabilities as well as assets at market value, with any gains and losses reported in a performance report designed to show comprehensive income to the proprietary interest alone.<sup>1</sup>

In contrast, another view of the firm sees its very existence as arising from the incompleteness of competitive markets. This is consistent with acknowledging the economic importance of competitive market forces elsewhere (recognising, in particular, the efficiency of financial markets in processing published information as well as the role of competition in final product markets in driving firms to innovate). Some markets are "purer" than others, and firms exist to organise production when resource inputs (or, at least, some of them) cannot be bought day-to-day in well traded markets. This is the view of transaction cost economics (TCE), associated in particular with Oliver Williamson who has built upon parts of the pioneering work of the Nobel economics laureates Arrow, Simon and Coase.<sup>2</sup>

### WHY ARE FIRMS NEEDED?

According to TCE, the activity of running a firm is, in itself, costly. Organising its activities requires work, worry and expense, arising particularly from the need to collect and process information. This would be avoided if the same outcome could be achieved more cheaply by market forces.

The least costly way to carry out a business activity is to buy the necessary requirements from the market,

*The AARF's Monograph 10 "Measurement in Financial Accounting" maintains the impetus built up over recent years through the foundation's inquiries into the nature and processes of published financial reports. This commentary concentrates upon two major aspects of financial reporting that are not fully addressed in the Monograph. The first is the general lesson that transaction cost economics offers to those who rely on current market values in preparing accounts for publication. The second is the need for standard-setters to agree on a workable definition of financial performance, since the income statement is more likely than the balance sheet to offer information needed for making useful predictions.*

day by day, in just the amounts needed as and when required, relying on market competition to ensure that supplies of appropriate quality and price can be secured. Even so, problems often arise over specifying and obtaining appropriate goods and services.<sup>3</sup> Purchasing, even in highly competitive markets, usually involves judgment about quality as well as price.

Many products cannot be readily traded at clear-cut market prices.<sup>4</sup> According to TCE, there are two ways to overcome this problem. Where inputs are specialised but do not require complete ownership to ensure a supply of services, long-term supply contracts may be agreed. These usually involve firms, rather than individual transactors, both on the supply and the demand side. The supplier has to commit specialist resources to supplying the goods or services; meanwhile, there needs to be some guarantee that the buyer will take up purchases as promised.

The more extreme way to overcome the problem of obtaining inputs that are not readily obtainable in the market is for the firm to produce for itself whatever intermediate products it requires. The inputs required by the firm may be physical (such as plant and machinery), or intangible (such as franchising rights), or human-embodied (such as technical knowledge). The firm buys and uses these assets itself because, despite the costs required to run the firm, it is still cheaper and more effective than trying to bargain in the market for supplies of the particular services that these assets render. These, then, constitute the "core" activities of the firm.<sup>5</sup>

TCE is based on this set of elementary principles. The firm exists because of "transaction costs". Torger Reve uses TCE to develop a "contract theory of the firm" and he quotes Oliver Williamson (Reve 1990, p. 135):

"The primary factors producing transactional difficulties include:

1. Bounded rationality (that is cognitive and perceptual limitations on the part of the actors).
2. Opportunism (that is, self-interest seeking with guile).
3. Small numbers bargaining (for example, oligopoly conditions).
4. Informational impactedness (that is, asymmetrical distribution of information among the exchanging parties).

"Transactional difficulties and transaction costs increase when transactions are characterised by:

1. Asset specificity (that is, transactions require investments which are specific to the requirements of a particular exchange relationship).
2. Uncertainty (that is, ambiguity as to transaction definitions and performance).
3. Infrequency (that is, transactions which are seldom undertaken)" (Williamson 1985).

It is pretty clear that the items listed above all involve obtaining information that is hard to obtain, including information on likely costs and benefits. Yet Reve says nothing about accounting or finance in his

paper. It becomes immediately obvious, on reading Reve's case, that some of the insights of TCE for accounting are profound. So too, vice versa, some of the best known concepts in accounting, such as the impossibility of allocating joint costs to products (except in a purely arbitrary way), illuminate a number of the problems that Reve identifies.

## APPLYING TCE TO ACCOUNTING

In applying these basic principles to accounting, it is worth noting that, of the various forms of inputs required by the firm, the only ones which appear in conventional accounting reports are tangible assets owned by the firm (or leased under finance leases) and purchased intangibles, to the extent that these have not been written off against revenues. Also shown in the accounts are current assets in possession, but by definition these circulate in the normal course of trade — they are not meant to be kept for long. These reported assets constitute some, though not all, of the "core" assets of the firm. There is no place on the balance sheet to show internally generated intangibles or purchased assets fully written off, or human assets such as managerial and technical knowledge of markets, processes or research possibilities. Yet these are of great importance to many firms, particularly with the rise in importance of service industries.<sup>6</sup> Nor do existing accounts reflect the firm's access to inputs purchased day-to-day in the market, or the intermediate forms of long-term supply contract, except insofar as either of them affects expenses written off against revenues.<sup>7</sup>

Further, it is often difficult to assess even the historical cost of the "core" assets with any accuracy. It has long been understood in economic theory that in markets where imperfect competition dominates both the supply side and the demand side, prices *ex ante* are indeterminate (see, for example, Fellner 1949). It often requires detailed and protracted bargaining to agree contract conditions between (the small sets of) buyers and sellers of producer goods under conditions of indeterminacy. Supply conditions for large-scale fixed assets often involve several variables — technical specifications, installation and testing conditions, maintenance, warranty terms, re-design and renovation options, trade-in provisions, deferred payment conditions and so on. It is often difficult to put a single monetary value on the package at any time, even *ex post* the date the contract is signed.<sup>8</sup>

Indeed, the difficulty of estimating the prices of core assets is one of the factors that make them core assets in the first place. The purchase of core assets often involves the risk of committing substantial resources to an irreversible project which might not work successfully and which might be completed too late to catch the market at its height.<sup>9</sup> But it is exactly because of this type of risk that there is a prospect of substantial profit for the firm that gets it right; it is correspondingly difficult (and confidential) to select the right projects, to plan in advance how to carry them

out, and then to report to the outside world on their progress. Even after they have commenced operations successfully, firms may be reluctant to publish too much detail about how they work. Competitive pressures always threaten, and, as noted, most of the problems of TCE revolve around the supply of relevant information, which is therefore very confidential.

The degree of imperfect competition to be expected on both the supply and demand sides of the market for core assets has a further implication. The Monograph (p. 47, para. 2.78) quotes the definition of "the fair value" of an asset, adopted in both international and Australian accounting standards, as "the amount for which an asset could be exchanged between a knowledgeable, willing buyer and a knowledgeable, willing seller in an arm's length transaction". But within the context of bargaining between parties in imperfect competition, there is not just one single, determinate amount towards which negotiations will tend to move; rather, there is a range of alternative values, each of which is acceptable to the seller and the buyer. Within this range, the resulting producer's surplus and consumer's surplus will vary. Whether or not the outcome can be described as "fair" is unclear, but it will be determined by the relative power of the parties.

Further complexities may arise in the types of deal that are central to TCE, as analysed for example by Hart (1995). Where one party has already made irreversible commitments to a project with strictly limited alternative uses, other parties to the contract may be in a position to exploit the position opportunistically by "holding out". This means that they will seek to renegotiate a pre-arranged deal at a later stage in the light of their revised bargaining strength. Such an outcome is less likely where there is the prospect of further deals between the parties or where a reputation for fair dealing is valuable, since holding out is most unlikely to be regarded as fair practice.

It is generally taken for granted in conceptual frameworks that assets can be traded at determinate market prices, even though these may involve haggling. This paper argues that haggling probably typifies the deals for core assets, rather than arising only in exceptional cases. Further, Hart (1995) notes that contracts are frequently "incomplete", rather than complete, in the sense that the full set of possible out-

comes may not be anticipated and priced into the contract. In the case of incomplete contracts, there will continue to be relations between the parties that are contingent on the occurrence of unforeseen events. If such events arise, their resolution will depend on the power of the parties at the time, rather than any pre-specified terms of the contract.

This analysis helps further to explain why Williamson (1988) recommends that debt capital be used to finance projects involving the use of redeployable assets, and equity capital should be used to finance the purchase of non-redeployable assets. Redeployable assets are more likely to have determinable second-hand market values, giving debt-holders effective contractual rights to recover at least part of their capital by invoking pre-determined rules (including insolvency laws). Investment in non-redeployable assets, by contrast, is that much more risky. Outcomes for the investor depend largely on continuing governance relations (including voting power) since asset values are entirely contingent upon the way the firm performs in the future. How far this performance can reliably be reported from one accounting period to the next remains a central debate for financial reporting. The use of market values to anticipate the future uses of core assets will probably be limited. This is why performance is traditionally reported as far as possible in the form of evidence that can be verified by third parties, such as cashflows and invoiced revenues from credit sales.

To sum up the argument so far, any asset which has a clear-cut market price will probably not appear on the balance sheet because it will be purchased day-to-day, in small amounts as and when required.

Assets which are traded in less active markets, but with prices that can be negotiated with some confidence, will be obtained under long-term executory supply contracts; these also have little place in the accounts except as an item of current expense. Similarly, the substantial "core" assets of the firm will usually include intangibles and human assets conventionally not reported. The only assets that will appear in the accounts will be those tangibles (and some intangibles) (i) which have been acquired in the past, but whose actual costs are particularly difficult to estimate, (ii) which are most unlikely to have any exact equivalent market buying price, and (iii) whose specialised nature makes their market selling price hard

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to predict (but probably low). It is these that some accountants have been arguing ought to be shown in the published accounts at current market values.

## CONSEQUENCES FOR POLICY

The views advanced above are tentative. Even though TCE has been developed in some detail over the past 40 years, some of the theory and findings are controversial, and the evidence incomplete.<sup>10</sup> However, there would seem to be several major consequences for financial reporting:

- The first implication is that historical cost accounting is likely to be more reliable than current value accounting. It has been argued (eg, by Ijiri 1967) that historical costs are to be preferred for some contracting purposes, such as pricing cost-plus contracts, determining managerial bonuses and agreeing the division of joint-venture profits.<sup>11</sup> Here, it is essential that clear-cut rules should be agreed, applied and monitored by reference to evidence that can be readily verified by third parties, otherwise it will not be possible to form contracts (or, at least, complete contracts) in the first place.
- Criticisms of conventional historical cost accounting statements have usually centred on their alleged lack of decision-relevance. Thus, for example, Lee and Tweedie (1977) established that a sample of individual shareholders intuitively interpreted the balance sheet as a statement of the current realisable values of the assets owned by the company (consistent with the views of the late Ray Chambers). But TCE does not just imply that current market values are difficult and costly to obtain: the problem is more than a simple matter of paying fees to valuers. As the Monograph points out (pp. 198-9, paras. 9.37-9.39), the index number problem bedevils all attempts to capture the effects of technical change, which tends to bias accounting towards overstating asset values and costs (see also Peasnell 1984). According to TCE, current market values for some core assets are virtually inconceivable. Particular assets were obtained in the past, at a cost that was hard to identify with any precision. The circumstances which led to their acquisition may have changed. There may be no replacement available, even if the firm still wanted one. To simulate a replacement might produce figures little better than random numbers.
- So far, the analysis has concentrated entirely upon the consequences of TCE for the balance sheet valuation of assets. The message seems to be entirely bleak — that the core assets of the firm either fail to appear on the balance sheet, or, if they do, they only appear at some rather rough and ready set of historical costs, incorporating what the Monograph (pp. 144-7) accepts to be arbitrary allocations of depreciation.<sup>12</sup>

However, none of this means that external users lack reliable information about the financial affairs of the business. The point at which all the activities of the firm coalesce is in the income that they jointly produce. The income statement thus represents the common

goal of core assets, short-term purchases and external contracts alike. Moreover, a series of income statements over time can convey a rich flow of information to financial markets. The income statement captures a great deal more than the balance sheet about the financial performance of the firm. The main lesson to be learned from TCE for the income statement is that asset valuation is likely to involve a great deal of uncertainty (and “noise”). To take the difference between large and uncertain magnitudes as elements of current income invites large swings from period to period, swings that have no predictive value. The requirement to carry forward from one period to the next only recognised assets and liabilities at their best valuation threatens to import the effects of large valuation errors that are both irrelevant and potentially misleading.

## IMPROVING REPORTS ON FINANCIAL PERFORMANCE

The first part of this paper is concerned with the limits of the balance sheet as a source of information; the second deals with the need to structure the income statement in its most useful form. The task of deciding on the required attributes remains central, of course, and this implies a need to know something of the decision models representative of user needs. The conceptual frameworks to date have presented a need to forecast future cashflows as the main purpose of published accounts, and this can help to focus the argument on certain central distinctions.

The first requirement for evaluating the income statement is to distinguish between flows to the entity and flows to the proprietors, a distinction that is well known in the literature (and in the Monograph, as at pp. 26, 198). However, this distinction has been glossed over in other conceptual frameworks, which define income exclusively in terms of gains and losses to the owners of share capital, excluding all returns to other stakeholders (as well as taxation) as expenses to be met before comprehensive income can be assessed. The weakness of this position is obvious when user groups themselves include many of these classes of stakeholder, whose interests in the reporting entity arise at an earlier stage. TCE implies that many more residual claimants are likely to be recognised once transaction costs and incomplete contracts are acknowledged. Thus the practice within the conceptual frameworks of referring to shareholders as “risk bearers” is somewhat unsatisfactory, since risks are born just as heavily by employees and managers, and by debt-holders who face the risk of default whereas shareholders enjoy the protection of limited liability.<sup>13</sup>

The second requirement for the income statement is that items of income and expense that are likely to persist from one period to the next are distinguished clearly from those that are transitory. In particular, earnings from ordinary trading activities are likely to be sustainable, under the control of management, to a greater degree than the other items in the financial statements. Moreover, operating results that incorpo-

rate only historical cost data are likely to be more reliable, from the viewpoint of TCE, than data based on the revaluation of core assets to market prices (or simulations of market prices).

The international debate is still inconclusive about the division of the income statement into its components, whether these are characterised by sustainability or by their reliance on market prices. In the UK, for example, the Accounting Standards Board (ASB) introduced by its Financial Reporting Standard No. 3 *Reporting Financial Performance* (ASB 1992) a distinct "statement of total recognised gains and losses" (STRGL — usually referred to as the "struggle"). The STRGL is supposed to report holding gains and losses separately from the operating earnings that appear in the more conventional profit and loss account. However, the nature and purposes of the distinctions have never been made clear. It is significant that the ASB's recently issued conceptual framework, its "Statement of Principles" (ASB 1999), excluded any analysis of what is meant by performance.

Instead, this was left to another discussion paper (G4+1, 1999), published separately by the member countries of the group for discussion but in fact prepared for the group by the staff of the UK's ASB (well before its own Statement of Principles was completed). This G4+1 paper, "Reporting Financial Performance: Proposals for Change", does not defend the STRGL. Instead, it argues that financial performance should be reported in a single statement, divided into three components: (a) the results of operating (or trading) activities; (b) the results of financing and other treasury activities; and (c) other gains and losses. However, the paper leaves many of the difficulties unresolved, such as the rationale for dividing gains and losses between "operating" and "other" categories. The paper comments (para. 2.20):

"The G4+1, accepting that it is difficult to find a robust distinction capable of universal application between 'operating activities' and 'other gains and losses', therefore proposes that standard-setters should specify the contents of the 'other gains and losses' category. This would be achieved by specifying in accounting standards those gains and losses that could be reported as 'other gains and losses'. In addition, accounting standards would also prescribe some (or all) of the contents of 'financing and other treasury activities' (possibly through the financial instruments project). The default category would be 'operating (trading) activities', ie if an item were not permitted to be included in 'other gains and losses' or 'financing and other treasury activities', then it must be included in 'operating (trading) activities'."

It is apparent from this extract that there is still uncertainty over the key features of performance measurement. In particular, the inclusion in operating results of the default category of gains and losses that do not belong anywhere else threatens to undermine the use of "operating activities" as a category to report sustainable flows. Doubts expressed in the paper

about the need to keep realised earnings distinct from unrealised gains (eg, in para. 4.12) raise the question whether operating results will continue to be reported in the conventional form of sales revenues less matched costs. TCE suggests that realised sales are more readily verified than productive activities that can give rise to gains that are merely "realisable".

None of this denies that conventional income recognition and cost matching involve the application of pragmatic rules that lack precise definition. Income is recognised at the date of invoice, which does not necessarily reflect the exact moment at which legal title passes. There are sound business reasons for this, of course, including the need to keep track of the movements of physical inventory. But the rules for revenue recognition, like cost matching, include scope for a range of practices, to reflect the nature of the core business being undertaken. This is done for good reason, to predict future trading results of a similar nature. This is the activity most under the control of the management, rather than depending on the vagaries of market forces that lie outside the influence of the firm. This is why operating profits are conventionally reported with any unrealised gains on non-current assets for the period shown separately from realised gains. Indeed, it is because of the sustainable nature of operating results that it is seen as so important to isolate "extraordinary" items that are not expected to be sustainable in future.<sup>14</sup> Whether in fact certain components of income perform better than others as predictors of future cashflows remains a matter for empirical evidence which, at present, is inconclusive. Thus, for example, an increasing number of researchers since Penman (1991) and Easton and Harris (1991) have studied relationships between clean surplus earnings and economic fundamentals, but assuming that it is possible to estimate the discounted residual income expectations that are not captured in reported balance sheet values. Meanwhile, O'Hanlon and Pope (1999) produce some evidence that market prices are not distorted by the absence of information on clean surplus income.

The statement of financial performance under the "relative current value method" favoured in the AARF's Monograph begins by reporting "net profit under the conventional accounting model" and then augments this with further information. (Monograph p. 210, para. 9.66) First, there are three adjustments to convert what is basically the historical cost profit figure into a figure for current cost entity profit. There follows a form of gearing adjustment that is relevant for converting entity earnings into earnings attributable to equity owners. A further capital maintenance adjustment then follows, based (presumably) on the general purchasing power that individual investors forgo by investing their funds in the firm rather than spending them. This procedure offers to keep distinct what are relatively reliable historical cost figures from the more judgmental figures that arise from the relative current value adjustments. Thus, it is helpful to add capital maintenance adjust-

ments after reporting the historical cost operating results, to reflect the multi-period cost implications of specific price movements and technical changes. These adjustment figures are highly judgmental, as the Monograph acknowledges at several points — for example, the problems of measuring operating capacity are well described, particularly in pp. 198–200.

## CONCLUSION

The main message of TCE for accounting measurement, then, is that figures arising from market valuations are likely to be less reliable than generally asserted in conceptual frameworks. Standard-setters have in recent years come to devote disproportionate time and energy to getting the balance sheet right, by focusing on assets and liabilities. If financial reporting is to be predicated on decision-relevance, rather than some exercise in scholasticism, there need to be stronger links between financial reports and predictions that are of interest to users. Standard-setters must give greater priority to performance measurement, and this means greater attention to analysing the nature and characteristics of income components. In particular, it is likely to be helpful to distinguish entity earnings from proprietary earnings, and to separate as far as possible those elements that are controllable and sustainable from those that are uncontrollable and unsustainable.

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## NOTES

- 1 The Monograph is unusual in that it clearly recognises the distinction between entity and proprietary views of the firm, unlike for example the UK Accounting Standards Board's "Statement of Principles" (ASB 1999) in which only a proprietary view is presented.
- 2 Williamson's work is not without its critics. For example, Dietrich (1994) points out theoretical inconsistencies in its treatment of uncertainty, while other business economists contrast Williamson's concern to minimise costs with conflicting needs to maximise efficiency and effectiveness (eg, Lazonick 1994).
- 3 It is worth remembering that there is no scope in perfect competition for advertising, since all commodities are supposed to possess readily identifiable, known qualities at stated prices; yet even in the most competitive markets, most goods (as distinct from commodities) today are branded.
- 4 There is also the problem that property rights, taken for granted by much market economics, can prove costly and uncertain to enforce. In some respects, the existence of friction in the legal process — "legal tribology" — has its uses. Thus a "cooling-off period", required before strikes become legal and

before personal credit agreements are binding, may help to avoid costly and irreversible mistakes. This problem is important, but it is not analysed here.

- 5 Current assets are those in which selling prices available to the firm are normally higher than replacement costs, so that the firm will normally trade in them. But this is only possible because the firm uses its specialist resources to exploit relative advantages in the relevant product markets. Fixed assets are those whose selling prices are normally below their value in use, which in turn is above replacement costs — the firm obtains such assets for use rather than resale. Conceptual frameworks acknowledge the distinction between current and fixed assets, even while seeking to limit elsewhere the exercise of managerial discretion which makes this distinction meaningful.
- 6 The Monograph (p. 31, para. 2.33) notes how such write-offs are usually made in the name of reliability. But this use of the term reliability conflicts with its use by Ijiri (1967), which is preferred in this paper (see footnote 11).
- 7 The current pattern of financial reporting was developed in the nineteenth century in response to limited liability, stressing the need for assets to be severable (so that they could be sold to meet debts). These rules developed over a 50-year period from about 1850 during which prices were, in general, falling, so that historical cost rules tended to be more conservative than current value accounting, thus giving security to creditors. (The general level of prices has only risen markedly during 1900–1920, the 1940s, and since 1960.) This fact, together with the preponderance of tangible fixed assets in early limited companies, produced reports that met the needs of early financiers by giving protection to creditors.
- 8 The Monograph refers to such problems of identifying historical cost (pp. 113–5, paras. 5.18–5.24) and extends the examples. (See also pp. 144–7, paras. 6.58–6.64.)
- 9 A literature has grown in recent years on the need to improve on DCF methods of selecting capital projects by the analysis of "real options". A major advantage of this analysis is its ability to capture the benefits of deferring a specific investment until further information may become available. For a simple survey, see Dixit and Pindyck (1995).
- 10 This literature is still more recent than the seminal works on which the conceptual frameworks for accounting are based. The literature sources embodied in the FASB conceptual framework generally predate 1960, and the other conceptual studies have replicated these ideas.
- 11 How far the use of current market values provides reliable information is, at heart, an empirical matter. The entire concept of reliability depends on some specific, identifiable set of decision rules, otherwise there is no test available by which to select the preferred attribute which characterises an "ideal"

reporting figure. Indeed, the other “qualitative characteristics” that figure in all the conceptual frameworks nearly all need key attributes of a decision model to be specified; otherwise there is no way to tell whether reports are “timely”, “free from bias”, and so on. Even so, it is unclear how merely listing qualitative characteristics helps in selecting between measurement bases. Gore, Mumford and Peasnell presented a paper to the 1993 European Accounting Association conference which defined reliability in terms of mean square error and bias from some defined attribute, following Ijiri (1967). Indeed, such considerations of reliability explain the persistent use of historical cost data in published accounts *even where the historical cost figures may represent a surrogate for current costs as the preferred attribute of the net assets reported*. For an argument that shareholders are not likely to be representative of users generally, see Mumford (1991).

- 12 The Monograph claims to show an “ideal” method of calculating depreciation, using annuity formulae (Appendix B, pp. 359-80). But this requires more precise foreknowledge of the economic values of assets than conventional depreciation methods do. In any case, the choice of an annuity method is just as arbitrary as straight-line depreciation unless it is explained why reporting a constant internal rate of return on each individual asset has some better predictive power for users. Similar objections arise to the (now established) practices requiring the finance costs of loans and leases to be accounted for on an (arbitrary) annuity pattern.
- 13 As the finance literature observes, shareholders in limited companies which borrow against the security of assets effectively sell the assets while retaining a call option on them. This call option is exercised by repaying the loan, which will not be done where the value of the assets is less than the value of the loan obligation.
- 14 Extraordinary items are now effectively defined out of existence among the “G4+1” countries, but the idea of sustainability survives in the requirement to distinguish between “exceptional” and recurrent items.

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