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Accounting standards and the economics of standards

Geoff Meeks and G.M. Peter Swann*

Abstract—The paper draws on the economics of standards to inform current debates on international accounting standards. It traces the benefits claimed for standards – their contribution to the division of labour, innovation, trust, etc.; and the costs, including entry barriers and compliance costs. It illustrates these benefits and costs with cases from accounting regulation. It adopts two approaches to the question whether accounting regulation is best achieved by a single set of standards for the world, or by competing systems. The first approach focuses on contributions in economics, including the theory of standards races and of optimal variety. In these analyses, only in special circumstances has a single standard emerged as the superior outcome. The second approach introduces evidence from accounting and finance on the problems of translation with globalised financial markets, and on the relative costs and benefits of multiple standard-setters or a single global scheme. The most compelling net benefits of harmonisation arise for small economies moving from idiosyncratic to international standards.

Keywords: international accounting regulation; economics of standards

1. Introduction

The aim of this paper is to explore what the distinct literatures on accounting standards and the economics of standards can learn from each other. Although some important pioneering contributions have explored the relationship between the two (for example, Bromwich, 1985; Solomons, 1986; Taylor and Turley, 1986), there is more to be done. We show that much of the recent literature on the economics of standards can help to inform our understanding of the role played by accounting standards. Moreover, we shall see that those contributions to the economics literature that try to define the *right number* of standards in a particular setting can also shed some light on current debates about the pros and cons of adopting a single set of accounting standards.

The rest of the paper is organised as follows. In

Section 2, we review the role of standards in promoting economic efficiency and wealth creation. In Section 3, we review the role of standards in promoting more efficient capital markets. In Section 4, we start to address the question, ‘how many standards should we have’, by drawing out some lessons from the economics literature on standards. In Section 5, we draw out some conclusions from the accounting literature on the case for and against a single set of global standards. Section 6 provides some concluding comments before Section 7 provides a postscript on the similarity between accounting standards and World Wide Web (WWW) standards.

2. The role of standards in promoting economic efficiency

Most economists would agree that the following economic mechanisms, amongst others, lie at the heart of wealth creation in a competitive economy:

- the division of labour
- international trade
- innovation
- competition in open markets
- cooperation to exploit network effects
- trust between trading partners.

This list does not include any reference to standards or standardisation as such. But as we shall see below, all of these mechanisms may work much better in the presence of open standards and standardisation.

The pioneering study of the economics of standards is generally taken to be that by Hemenway (1975). There are incidental (and indeed, very important) references to the role of standards before that, and indeed the role of standards in the growth

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of international trade was not lost on economic historians (e.g. Erwin, 1960; Skinner, 1954). But Hemenway's (1975) was the first book devoted explicitly to the economics of standards. The literature took off rapidly in 1985, with the publication of three papers on the emergence of *de facto* standards by David (1985), Farrell and Saloner (1985) and Katz and Shapiro (1985). A very recent survey is offered by Hesser et al. (2006).

That literature distinguishes four types of standard – or perhaps it would be better to say four *purposes* of standardisation (David, 1987; Swann, 2000):

- standards for compatibility and interoperability
- minimum quality (or safety) standards
- standards to promote scale economies by efficient variety reduction
- standards of measurement and product/service description.

Although the economic issues involved vary across these four different purposes, they are all inter-related. Accordingly, rather than organise our discussion around these four types or purposes, we organise our discussion around the effects of standards. Much of the literature is positive about the economic role of standards, but in some circumstances there is also a downside. Accordingly, we review both the constructive contribution of standards (Section 2.1) and the downside (Section 2.2).

2.1. *The constructive contribution of standards*

In what follows, we identify six mechanisms by which standards contribute to economic growth and efficiency.

Division of labour

Adam Smith (1776) noted that even in the simplest forms of manufacture, it was customary to find that the production process was divided into several distinct parts. Each labourer would work on just one of those tasks. Smith argued that this division of labour had a central role in economic development and wealth creation. For a worker, specialising in one task could achieve levels of productivity far in excess of what could be achieved if the worker carried out all the steps in the production process.¹

However, the division of labour only works as a manufacturing strategy if the fruits of this divided labour can be recombined harmoniously to achieve a quality finished product or service. This recombination depends essentially on an understanding between adjacent labourers in the production process. The first worker must complete his/her task in a form and to a standard expected by the second so that the second can quickly proceed with his/her own task. The recombination of these fruits of divided labour therefore depend on

norms or standards – whether formal or informal. Informal norms may be limited to the one firm, and indeed, they may be limited to an adjacent pair of workers. By contrast, formal standards may be global and open. But either way, the success of the division of labour depends on standards.

Smith illustrated his discussion of the division of labour with reference to the manufacture of pins. But an even more striking example, from the same period, was the manufacture of watches and clocks, where there existed an extraordinarily intricate division of labour. Such a division of labour would never work unless each component is made to a commonly understood specification. Without that, the clock-maker could never expect to assemble all the parts into a working timepiece. But supported by appropriate standards, the division of labour enhanced productivity and quality, and brought affordable timepieces within the reach of more and more ordinary citizens.

Standards, transaction costs and international trade

We know from the earliest history of trading that standards were essential for the growth of trade. We are reminded of this when we visit the great museums of the world as tourists. There we find standard weights and standard lengths in elegant forms, dating from ancient civilisations.

Trade is a powerful force for economic efficiency. One of the main arguments for buying components from a specialist supplier rather than making them in-house is that the specialist may be able to produce the same component better or cheaper. The specialist supplier enjoys economies of scale or other competitive advantages from specialisation that cannot be realised if the customer makes the component in-house. One of the main arguments against buying, on the other hand, is that dealing with an outside supplier may embroil the firm in a variety of *transaction costs* – as they are called in economics.

Transaction costs describe the costs that two parties face in doing business with each other. Transaction costs can take several forms, including the costs of ensuring that a particular supplier will produce exactly what the customer wants. Such costs can be substantial when the component is very complex and compatibility with the customer's requirements is critical. As a result of transaction costs, it may no longer seem attractive to source components from a specialist supplier, even if that supplier has potential cost advantages in production.

The use of standards can help to reduce these transaction costs (Akkermans and van der Horst,

¹ Charles Babbage (1835), who first invented the idea of a programmable computer, further developed our understanding of the division of labour.

2002; Antonelli, 1994; Blois, 1990; den Butter et al., 2007; Hudson and Jones, 1997, 2001; North, 1990; Williamson, 1998). If we seek a standard component from an external supplier, then even if the component is a complex one, the costs of ensuring that the supplier produces exactly what we want are reduced. By reducing transaction costs, standards can make it cost-effective for companies to use the market to source specialised components. This increases the use of the market, and may indeed increase the geographical extent of the market. A number of studies have explored the positive link between standards and the extent of trade: Beghin and Bureau (2001), Blind (2004), Hudson and Jones (2003), Maskus et al. (2005), Swann et al. (1996), Wilson and Otsuki (2003).

One of the most striking examples of this process at work must be the personal computer. If we open up a personal computer and look at the national origins of the different components, it is common to find that they come from at least 10–15 different countries, and sometimes many more. Globalisation has progressed especially fast in electronics because there are so very many well-defined standards. This has made it easier to out-source production of standard components to low cost companies that specialise in particular parts of the vertical chain. The buyer seeks a standard component: he doesn't really care and, indeed, may not know where it comes from, or who produces it.²

However, we need to finish this sub-section with a cautionary note. A number of studies have suggested that while open international standards may have the benign effects described above, idiosyncratic national standards may have less desirable effects (Lecraw, 1984, 1987). We comment further on that below.

Standards and innovation

The idea that innovation lies at the heart of wealth creation is perhaps uncontroversial. But the assertion that standardisation has a central role in innovation may seem, to some at least, rather more surprising. When, in 2005, the Department of Trade and Industry published a study on the economic benefits of standardisation (Temple et al., 2005), *The Scotsman* reacted with the delightfully ironic headline, 'Red tape can be good for business.'³

This quotation captures the essential paradox in the relationship between standardisation and innovation. The DTI study to which we refer found that about half the respondents to a survey said that standards help their innovation activities and about half said that regulations and standards were a constraint on innovation. We might guess that this is a simple split in opinion, with half finding standards helpful while the other half find standards a constraint. But in fact that was *not* what the survey showed. The majority of those who said that stan-

dards were a help also said that standards were a constraint. And the majority of those who said that standards were not a help also said that standards were not a constraint. In short, standards seem to help and constrain at the same time.

This is consistent with a metaphor of standards developed in Swann (2000). Standardisation does for innovation something similar to what pruning does for fruit trees. A programme of pruning may constrain the shape of the tree and reduce growth in some directions in the short run. But in the longer run, pruning promotes a healthy shape in the tree and helps to maximise the amount of useable fruit that can be harvested. In the same way, standardisation constrains innovation options in the short term, but by promoting healthy market development can maximise useful product variety in the long term.

So how do standards support innovation? We can find several mechanisms at work here (Berg, 1989; DIN, 2000; Foray, 1998; Gabel, 1987, 1991; Grindley, 1995; Langlois, 1992).

First, as we argued above, standards support the division of labour, and as Smith argued, the division of labour can help generate certain types of innovation activity. Second, open standards can help to open up markets and allow new entrants – more on this below. As Schumpeter argued, the new entrant is a powerful force for innovation. Third, the existence of generally accepted measurement standards allows the innovative company to prove that its innovative products do indeed have superior performance. In the absence of such measurement standards, the innovator may not be able to sustain a premium for his product in the market because he cannot prove its superiority. If the innovator cannot achieve a premium for his innovations, then the economic incentive for innovation may be lost.

And fourth – a point we discuss below – standards help us derive the greatest value from our networks. Open standards allow innovative entrants to take advantage of network effects, and market add-ons which are compatible with the core technology and enhance its functionality. In the absence of open standards, such innovative entry is hard or impossible, but in the presence of open standards such entry is relatively easy and often profitable. One of the leading examples of this is sometimes called the 'Lotus 1-2-3 phenomenon'. Before the Windows era in personal computing, Lotus 1-2-3 was the leader in the spreadsheet market. Rather than make their product a closed and entirely proprietary design, Lotus

² Few buyers would insist on opening up a computer before purchase to find out where the components come from. But even if it is of little importance to the user, it is very instructive to the economist!

³ *The Scotsman*, 20 June (2005).

had decided in 1985 to make sections of their source code accessible to third party software houses. This encouraged a large number of other software houses to produce add-ons which would work in conjunction with Lotus 1-2-3. This was good for Lotus and for the other software houses. It enhanced the power of the 1-2-3 platform. Equally, without this opportunity to produce Lotus-compatible add-ons, the third party software houses could not have achieved such success for their specialised add-on products (Swann, 1990).

Competition in open markets: reducing barriers to entry

Most economists argue that competition in open markets is generally a good thing for the efficient operation of an economy. In the view of Smith (1776) and many 19th century political economists, competition was a good thing because it promoted the efficient, drove out the inefficient, and secured a low price for the consumer. The 20th century economist, Joseph Schumpeter (1954), went further and argued that low prices were only the beginning of the benefits of competition. The real benefits were to be found in the innovations to which competition gives rise: the new source of supply, the new business model, the new product, the new service, and so on.

For markets to be genuinely open, a lot of conditions must be satisfied. There must be no barriers to entry which give an incumbent in the market an advantage over entrants just because it is an incumbent. Now, for sure, open standards cannot remove all barriers to entry. And in some circumstances, idiosyncratic standards may constitute a barrier to entry more than an aid to entry – see Section 2.2. But open standards representing a balance of producer, consumer and third-party interests can help to enable open markets and hence increase competition (Lehr, 1996; Reddy, 1987; OTA, 1992; Swann, 2000; Veall, 1995)

Why is this? If the technological characteristics required of a product or service are not defined in a standard, then incumbents with a long history of trading in an industry have an advantage over potential entrants, because the former have accumulated tacit knowledge that enables them to produce what is required in this market. The entrant, by contrast, has to embark on reverse engineering or trial and error. By contrast, if the technological characteristics required of a product or service are defined in a standard, then incumbents have less of an advantage over the entrant. The open standard opens up the market club to new entrants because the rules of membership are now set out on paper. Sometimes large businesses are resistant to open standards because they believe that these increase competition. They are right!

The history of the personal computer provides a powerful illustration of how the existence and use

of open standards allowed many new entrants into the computer industry. The fact that IBM devised an open standard and outsourced the production of its components to many small electronics and software companies may not have helped its own long-term success in this market. But it provides a powerful example of how open standards facilitate entry, strong competition and the complete restructuring of an industry (Langlois, 1992).

Nevertheless, some elements of popular opinion still have difficulty with these assertions. The popular press enjoys stories of idiosyncratic national standards that act as a barrier to imports into that country's market. We shall return to this theme in Section 2.2.

Co-operation to exploit network effects

In economics, a network technology is any technology where the value to the user depends not just on the intrinsic merits of the technology itself, but also on the size and composition of the network of other users of the same technology. Economists talk of network effects as the additional benefits derived (directly or indirectly) from the fact that there is a large community of other users. Network technologies and network effects are pervasive in the modern economy (Rohlf's, 1974; Katz and Shapiro, 1985; Farrell and Saloner, 1985).

Economics has several 'laws' of network effects which describe how the value of the network increases with size (summarised in Swann, 2002). These are, to be honest, not like the laws of a precise science – such as the laws of thermodynamics – so it might be better to think of them as 'rules of thumb'. The best known is called Metcalfe's Law. This asserts that the total value that an economy derives from a network depends on the variety of two-way communication linkages that can be sustained in the network, and that is approximately proportional to the square of the network size. However, this law can only apply if there is substantial compatibility between the different network members. And that, in turn, calls for ubiquitous, open standards.

Some of the best known examples of Metcalfe's Law are in communications. The value of a telephone comes mainly from the network of others who also own telephones, and with whom telephone conversations can be held. Equally, the value of e-mail comes mainly from the network of others who also use e-mail.

Berners-Lee (1999), the originator of the WWW, has written of the necessity of open and non-proprietary standards for the efficient operation of the internet. He, and other writers, have written of the damage done to the internet when some users assert their intellectual property rights over parts of the network. When that is done, it undermines Metcalfe's Law and reduces the value we can derive from the network. Farrell (1995) argues that

there are good reasons to argue for a light touch towards intellectual property protection in network industries.

Standards and trust between sellers and buyers

The final item on our list of essential mechanisms in economic development is trust between traders. Amongst those who study business ethics and corporate social responsibility there is a saying that, 'ethical business is good business'. This is reassuring but also surprising. For if ethical business strategies were always the best business strategies, then there would surely be no problem of business ethics. But the case of Enron (amongst other corporate scandals) amply demonstrates that there is such a problem! The resolution to this puzzle is the assertion that even if ethical business is in the joint long-term interests of all parties to the business deal, it is not necessarily in the short-term interests of all.

One very topical area where standards are essential to trust between buyers and sellers are standards of measurement. It is good for a market if all the traders in it can be relied on to measure and describe their goods honestly. Indeed, a reputation for honest trading is essential to the long-term prosperity of the market. If traders in a market earned a reputation for sharp practice in measuring and describing their products, then buyers would be wary of using that market and would go elsewhere.⁴

These problems relate to what modern economics calls 'information asymmetry'. In a very famous paper, Akerlof (1970) demonstrated that if the seller knows more about the quality of the goods or service being traded than does the buyer, then the seller may be in a position to exploit the ignorance of the buyer. The buyer, knowing this, is wary of buying from this supplier because he does not trust him to behave entirely honestly. In the extreme case, buyers may withdraw altogether from the market because of this lack of trust. That, in turn, may lead honest sellers to withdraw, if they cannot clearly distinguish themselves from the dishonest traders. We find that the exploitation of asymmetric information and a lack of trust means that 'bad drives out good'.⁵ The result is a marked decline in trading.

How do standards help to resolve this? Standards can help to reduce information asymmetry or reduce the problems caused by asymmetric information. If an honest trader can certify that a product conforms to a standard, then the customer can buy without facing the risk described before. Or if standards are observable and enforceable, the buyer can hold the dishonest trader to account if the product fails to meet the accepted standard. If the standards and their accreditation are open and impartial, then it is harder for one trader to exploit the ignorance of another. It is possible for customers

to identify suppliers who they can trust (Boom, 1995; David, 1987; Leland, 1979). Moreover measurement standards will also serve to correct the information asymmetry because they furnish the customer with the means to measure whether the product is of the required quality (Bacharach 1991; Tasse 1982).

This function of standards will become ever more important. As some of the products we buy become ever more complex, and as the processes by which they are made become ever more complex and opaque, many buyers find themselves out of their depth. The existence and use of open and impartial standards is one of the mechanisms that allow them to buy with confidence.

2.2. The downside of standards

The reader may think that Section 2.1 sounds almost too good to be true. Is there no downside to standards? Yes, there can be a downside in certain circumstances. Here we touch briefly on four issues.

Strategic idiosyncrasy: increased barriers to entry

In Section 2.1, we argued that standards could reduce barriers to entry. The arguments in that part of the paper apply to open international standards, which offer a balance between the interests of different producers and consumers. But if a national standard is drafted with the exclusive interest of domestic producers in mind, and with no regard to the interests of domestic customers, then it can increase barriers to entry and competition (Lecraw, 1984, 1987; Mcintyre, 1997).

The literature is clear that if one player has undue control over the way in which a standard is defined, then they will be able to slant that standard to give themselves a decisive competitive advantage (Swann, 2000). For that reason, there are substantial incentives for companies and national agencies to participate in standards-setting so that the outcome is to their competitive advantage (ANSI, 2000; DIN, 2000; Grindley, 1995).

Risk of monopolisation

Moreover, especially in the computer industry, there has been much discussion of how closed

⁴ The idea is actually an old one. Visitors to the Market Hall in the city of Truro, UK, will find a plaque on the wall (bearing the date, 1615) which cautions all market traders as follows: 'Who seek to find eternal treasure must use no guile in weight or measure.' The author of this rhyme clearly implied that it was not just the trader's worldly wealth that was at stake but also his progress in the hereafter. But the reason for locating the plaque in a market hall must have been the recognition that a reputation for honest trading was essential to the long-term prosperity of the market.

⁵ The idea that bad drives out good is an old idea, usually called Gresham's Law. But strictly speaking, the original Gresham's Law is not about asymmetric information as such. We are grateful to Brian Singleton-Green for this point.

standards act as barriers to entry. It is usually possible for competitors to produce applications software to run on a proprietary operating system. But there remains the question of whether a third party application can ever perform as well on a proprietary operating system as the rival application produced by the owner of the proprietary standard. This has been a particular concern in the context of Microsoft.

Because standards-setting will often tend to generate a single monopoly standard, there is the additional risk of lock-in to an inferior standard. Following the pioneering work of David (1985), a considerable number of studies have identified lock-in as a real hazard (see Swann, 2000 for a summary of that literature). On the other hand, some authors (notably, Liebowitz and Margolis, 1990, 1994) have argued that this lock-in to an inferior standard is at worst an 'uncommon tragedy'.

Raising compliance costs

Standards can impose compliance costs on firms that have to meet these standards. This is especially relevant in the context of environmental standards (Besanko, 1987; Livernois and McKenna, 1999) but can apply to all types of standards. In addition there is a risk of a particular form of regulatory capture whereby firms seek to influence standards-setters to impose a demanding standard, because although that imposes costs on the firm it will impose even greater costs on their rivals. Salop and Scheffman (1983) have argued that standards are one of the mechanisms which firms can target in order to raise rivals' costs in this way. It is worth noting that existing companies always have an advantage over future companies in this regard, because existing companies are often consulted about new standards or new legislation, but future competitors have no voice in the matter.

Constraints on product design and reduced variety

In Section 2.1, we argued that in many respects, standards would enhance innovation. That is true. But there is an important respect in which a particular type of standard will constrain innovation and reduce variety.⁶ This is the variety reduction standard – the adoption of a limited variety of standard sizes to achieve economies of scale. The optimum product variety for the firm may not be the same as the optimum product variety for the customer (Lancaster, 1979).

While this is certainly a possible problem with standards, it may not be especially important in practice. In Section 4 we summarise a very interesting study by Bongers (1982) which tries to work

out the optimum number (and optimum sizes) of concrete posts to supply a particular market. He found that, depending on some assumptions, the optimum number of posts was between 5 and 10, and in his analysis, relatively few customers lose out heavily because of a lack of variety.

3. The specific role of accounting standards in promoting economic efficiency

3.1. The constructive contribution of standards

Division of 'labour'

Since Adam Smith wrote about the division of labour we have seen a huge shift from businesses run by the owners to ones where functions are divided between absentee shareholders, on the one side, and salaried managers on the other. Berle and Means (1932) famously documented the division; and AT&T provides a leading case of the dispersal of share ownership: by the late 20th century its list of shareholders reached three million. As Adam Smith would have predicted, this public company structure brings great benefits in terms of risk-spreading and of financing large scale projects which would have been beyond the reach of individual owner-managers. But it also brings challenges for two key functions of financial reports: valuing equity and monitoring managers' stewardship of shareholders' assets. With valuation there is an information asymmetry problem: absentee shareholders are typically far less well-informed than insider managers about the prospects for their investment. And with stewardship there is in addition an incentive problem – in Adam Smith's words again:

'The directors of such [joint-stock] companies, however, being the managers rather of other people's money than of their own, it cannot well be expected that they should watch over it with the same anxious vigilance with which the partners in a private copartnery frequently watch over their own ... Negligence and profusion, therefore, must always prevail, more or less, in the management of the affairs of such a company.'

Accounting standards have now been in place for equities for so long that no-one can remember – and it is hard to imagine – valuation and stewardship without them. But a glimpse of that *laissez faire* counterfactual is provided by another financial sector which 'evolved' separately and did not install standards until relatively recently – a financial analogue, perhaps, of the Galapagos Islands. This is Lloyd's of London – a major market⁷ which shares with the equity market serious information asymmetry between principal and agent – the root of Akerlof's analysis and of Gresham's Law discussed above – problems compounded in this case by the unlimited liability of the principal: the 'neg-

⁶ David (1995) tries to reconcile this tension between the innovation-enhancing and innovation-constraining effect of standards.

⁷ Accounting at that time for no less than 14% of all UK financial institutions' invisible export earnings (Neill, 1987).

ligence and profusion' of the managers could cost the Lloyd's Names not just their initial investment but everything they owned.

As late as the early 1980s, the Lloyd's market could still be characterised as *laissez faire* in terms of financial reporting. There was no regulatory requirement for publication of Lloyd's syndicate accounts; and there were 'no standard accounting or audit practices or rules in relation to disclosure' (DTI, 1990: 47). Gwilliam et al. (2005) draw on DTI reports and Lloyd's syndicate accounts to provide a case study of the results, and document the widespread plundering of principals' funds by their agents. Towards \$100m were siphoned off by agents in just two notorious cases; and these were evidently not isolated cases: the Chief Executive of Lloyd's suggested how widespread malpractice had become: 'doubtful arrangements', breaching the laws of agency, affected 'syndicates covering 92% of the total membership of Lloyd's' (Davison, 1987: 62). And he attributed it directly to information problems – the absence of modern accounting and audit standards – which masked the self-interested actions of the agents.

In relation to valuation and investment decisions, Smith (1996) provides a telling example of the consequence of weak accounting standards. The UK public company Coloroll enjoyed the stock market's support for a series of acquisitions which secured a ten-fold growth of the business in just four years. But in the absence of effective accounting standards, the company reported profits which were vastly swollen by accounting sleights of hand – notably the use of the notorious 'reorganisation provision' which contributed up to £52m of its £56m reported profits in 1988–1989. The following year the company failed: equity previously valued at £424m had evaporated.

The raft of standards subsequently introduced by the ASB⁸ made a repetition of such blatant misinformation and market failure less likely.⁹ But the takeover market continues to witness a tension between standard-setters and the companies reporting their performance around M&A. Standard-setters have sought to limit the discretion of bidders' managers to misinform shareholders of their earnings ahead of share for share takeover, discretion which Erikson and Wang (1998) and Botsari and Meeks (2008) suggest has been systematically exercised to flatter the bidder's track record through managing accruals.

This role of standards is increasingly recognised in the finance literature: Shleifer and Vishny (2003) build their theory of takeover on misinformed markets. Their influential study 'points to a powerful incentive for firms to get their equity overvalued, so that they can make acquisitions with stock'; and they recognise the role of earnings management – of exploiting the discretion allowed

by accounting standards when reporting performance – in securing that overvaluation. A great deal is at stake in such markets – which allocate control of assets of up to £100 billion a year at the top of the cycle¹⁰ in the UK, much more in the US.

Transaction costs

Of course, the financial markets are not automatically duped by accounting sleights of hand. Just because accounting standards do not mandate release of a piece of price-relevant information does not necessarily mean the market will not seek it out and impound it in share price. If markets are 'semi-strong efficient' in Fama's (1970) terms, then prices will reflect all publicly available information, irrespective of whether the accounting standard-setters have decreed that it be spelled out in the financial reports. The misallocation of resources associated with the Coloroll case or the Shleifer and Vishny model is associated instead with misinformation which is hidden from public view – insider information, opaque to the outside investor, which only a market which is strong form efficient will impound; and few people will claim the equity market is characterised by strong form efficiency.

There is a longstanding literature documenting cases where the market has 'seen through' accounting manipulation and 'reversed out' movements in the income statement or balance sheet which arise just because of an accounting change. Archibald (1972) reported that, other things being equal, companies which adjusted their depreciation methods in order to swell the earnings number would not be rewarded with a higher share price: the market possessed enough information to recognise, quantify and discount the effect on earnings. Similar conclusions were reached in relation to the choice between merger and acquisition accounting (pooling/purchase in the US): since analysts could readily replicate from public information a set of accounts on the alternative basis (e.g. adding back goodwill amortisation), the market would be unimpressed by reported earnings which were higher simply because the company had chosen merger accounting to avoid an amortisation charge (Hong et al., 1978).¹¹

⁸ The context and aims of that phase of rapid progress in regulation are well covered by some of the papers of Geoffrey Whittington, a leading participant in the process, e.g. Whittington (1989), Tweedie and Whittington (1990), Whittington (1993) and Thorell and Whittington (1994). And Whittington (2008) addresses the role of IASB regulation in relation to stewardship.

⁹ Though, in the US, the experience of reserve reversals at WorldCom – subsequently the biggest bankruptcy in history – has some characteristics in common with Coloroll (see Meeks, 2002).

¹⁰ ONS (2008).

¹¹ Though Lys and Vincent (1995) analyse the anomalous case where AT&T was willing to pay upwards of \$50m more for NCR if it could structure the deal as a merger rather than an acquisition.

Even so, achieving the right outcome in such cases is not costless, and the literature suggests a role for accounting standards in reducing these costs.

One strand of this literature emphasises redundant or duplicative expenditure. Hirshleifer (1971) analyses cases where it pays investors to devote resources to get a piece of information ahead of other investors when that information is price-sensitive, and so is valuable for making trading gains. It is rational for individual investors to spend on this activity, even if it yields no social benefit – even if it is a zero-sum game where one trader's gain is another's loss.¹² But from a social point of view, simply mandating its disclosure would save the competitive information search.¹³ A recent example, though one where there were social consequences as well as private ones, might be banks' exposure to sub-prime lending, where analysts were in a headlong rush to guesstimate banks' vulnerability on this account, because massive price changes hinged on the result.

Is this a significant plank in the case for standards? Are search and related transaction costs in the equity market actually material? Meeks and Meeks (2002) attempt an estimate of such costs by comparing the expense of actively managing a portfolio of shares with the cost of passive management (e.g. an indexed fund). The results are not precise and they comprise much more search activity than could be made redundant by even the most successful accounting standards. But for UK equities the figure was around £1.8 billion.

A further category of transaction cost affected by accounting standards is the cost of contracting, or 'quasi-contracting'. Accounting numbers are used in a range of contracts designed to restrict the freedom of signatories to exploit their informational advantage, or to align the interests of both signatories. These include the debt covenants in debt contracts, specifying values for accounting numbers or ratios which will trigger recall rights for the lender (Citron, 1992), and remuneration contracts for company directors – designed to limit the 'negligence and profusion' which Adam Smith expect-

ed of managers who had no stake in the business (e.g. Meeks and Whittington, 1975; Forbes and Watson, 1993).

A principal example of 'quasi contracting' is the corporation tax bill. Whilst there are, of course, important differences between taxable income and the income reported to shareholders, nevertheless income governed by standards does determine the underlying, or default, tax base, to which the authorities specify exceptions. Then in regulated industries such as the utilities, the regulatory formulae governing sales prices explicitly embody income governed by standards in 'rate of return' regimes, and indirectly depend on the same measures in 'RPI-x' formulae, where the value of x set by the regulator is heavily influenced by recent accounting rates of return (Whittington (1994)).

Scott and Upton (1991: 5) emphasised the cost-saving role of the standards in the contracting process: 'Without a body of [accounting] standards, lenders would be forced to negotiate such contracts "from scratch". [Those contracting] would have to create their own comprehensive set of accounting rules ...' The benefits of 'off the peg' accounting measures arise not just in writing contracts but also in enforcing them (Whittington, 1993). Scott and Upton give a related example where the parties to a contract prefer well-defined claims and obligations: 'auditors see the possibility of lawsuits as a very real cost ... As a result, auditors frequently suggest including more detailed and specific provisions in a pronouncement [on standards]. By narrowing alternatives, auditor judgement is reduced – a consequence that auditors often view as a benefit' (p. 7).

Accounting standards and financial innovation

Performance pricing in debt contracting offers a recent example of financial innovation supported by accounting standards. While accounting numbers have long been a feature of debt contracts, much more sophisticated use of such numbers is now being adopted through contracts embodying performance pricing. This innovation makes the interest rate charged on a loan vary with, for example, the ratio of debt to earnings (Asquith et al., 2005; Chatterjee, 2006). It means that a business which becomes a better credit risk benefits from a lower interest rate, without having to negotiate a new loan contract; whilst a lender whose borrower becomes a worse credit risk is compensated by a higher risk premium in the interest rate; and with this safeguard the lender can accept a lower interest rate in the first place. Both sides stand to gain from such contracts.

But the contracts would hardly be viable if, say, earnings were poorly defined; because then the borrower could mask its changing credit risk by creative accounting, and the lender would have no

¹² An example might be the outcome of litigation between two firms, which would affect their respective earnings when the settlement was known, but would not affect expected future earnings.

¹³ Bromwich (1992) analyses a further reason why the market may not reach the best collective outcome. He points to the 'public good' characteristics of accounting information: once the information has been released to one user/consumer, it becomes available to all; and one person's consumption does not diminish the amount left over for others. There is then a problem in getting the payment from consumers who stand to benefit from the good (information in this case) – there is an incentive to 'free ride'; and so the information is under-provided: production is likely to be restricted below the level warranted by the benefits it could bring.

clear definition of earnings on the basis of which it could pursue a claim in court. This innovation presupposes standardised accounts.

Reducing entry barriers and network effects in accounting

Metcalfe's Law, in relation to network effects, emphasises the number of two-way communication linkages, with the value of the network rising disproportionately as its size increases. Accounting standards can facilitate these communication linkages – in effect they provide a dictionary of reporting language and concepts. There is a virtuous circle: once a firm adopts the language of a particular market, it can trade with the investors on that market, and its entry to the market increases the availability of securities, supporting a larger number of investors who can participate in the market, and giving investors greater choice of risk-return profiles when designing their portfolios.

By simply adopting US standards (which resulted in very different numbers from the German ones – see below) Daimler Benz was able to gain immediate access to the US stock market, and US investors had an enhanced range of securities available without having to learn German accounting (Ball, 1999).

Standards and trust between sellers and buyers

The earlier examples from Lloyd's and from Coloroll illustrate the scale of direct costs incurred by participants in the financial markets who are misinformed about their investments. But Akerlof argued that these costs are exceeded by the indirect costs of misinformation: 'The cost of dishonesty ... lies not only in the amount by which the purchaser is cheated, the cost must also include the loss incurred from driving legitimate business out of existence.' This application of Gresham's Law constitutes, in Akerlof's view, 'the major cost of dishonesty'. Lev (1988: 7) applies the argument to the securities markets: 'At the extreme, suspecting gross information asymmetries, uninformed investors may quite rationally withdraw from trading ... altogether ... A massive withdrawal of uninformed investors from the market will ... deprive the economy of the allocational and risk-sharing benefits of large and efficient capital markets'. Such market collapse has been seen in the 2008 turmoil in financial markets following a loss of confidence by investors – prompted initially by mistrust of the balance sheet values of mortgage loans.

It is not straightforward to verify such links empirically. But suggestive evidence in support comes from three sources. First, in relation to Lloyd's, Gwilliam et al. (2005) chart the sharp rise in business in the period after a new regulatory regime was introduced, consistent with the Gresham/Akerlof/Lev expectation. Second, com-

paring a weakly regulated regime with more vigorously regulated ones, Shleifer and Vishny (1997) report the assets of Russian oil companies being valued at a 99% discount to those of their Western counterparts; and they attribute this in part to the potential plunder of assets by managers, because of their weak monitoring and control arrangements. Third, having reviewed a range of evidence on the link between the level of information disclosure and the terms on which firms can raise finance, Botosan (2006: 31) concludes: 'The over-riding conclusion of existing theoretical and empirical research is that greater disclosure reduces the cost of capital'.

3.2. The downside of accounting standards

Increased barriers to entry

As early as 1991, long before Sarbanes-Oxley, Beresford (1991), the former chairman of FASB, expressed the concern that 'many foreign companies are reluctant to offer their securities in US public markets or list them on US exchanges because they are unwilling to comply with the voluminous and detailed US accounting and disclosure requirements or submit to the SEC's jurisdiction.' Zeff (1998) reports evidence which may have lain behind Beresford's concerns: the London Stock Exchange had more foreign listings than New York (526, against 343), with a higher capitalisation (\$3.8 trillion, against \$2.1 trillion).

Risk of monopolisation

It is sometimes alleged that imposing demanding standards yields a competitive advantage to large accounting/audit firms, which can spread the fixed costs of compliance across a larger number of clients, and whose – typically larger – clients can more readily bear the fixed costs of audit and compliance. This allegation, and the associated one of regulatory capture (see the discussion in Section 2.2 of Salop and Scheffman (1983)), finds particular support in systems where audit partners of large firms are heavily represented on the standard-setting body.

Regulatory and compliance costs

Meeks and Meeks (2002) report the costs of the accounting standard-setter in three jurisdictions, the UK, the US and Sweden. For the UK (this predates the IASB regime), the regulator's costs were equivalent to around one-tenth of 1% of the audit fee of the regulatees.

Compliance costs are harder to calculate, with response bias playing a part. FASB (1988) reported in relation to FAS 96 that 'one Fortune 10 company testifying about the costs of a new standard on accounting for income taxes estimated the cost at "one-half a man year to administer the rule"'; whilst another Fortune 10 company, testifying on the same day, estimated 'the ongoing effort to

require the equivalent of 40 full-time employees, costing five to six million dollars annually⁷.

Carsberg and Page (1984) estimated the recurring costs of maintaining the new set of (current cost) accounts required by SSAP16 as 0.007% of turnover at the median – in their words ‘hardly great enough to explain the strong opposition that some preparers show to current cost accounting’ (p. 176). In relation to the new standards (and other regulation) introduced at Lloyd’s, Gwilliam et al. (2005) estimated the compliance costs to be of the same order of magnitude as the regulator’s costs, with the extra audit costs totalling a somewhat smaller further sum. ICAEW (2007) estimated that the typical cost of preparing the first IFRS consolidated financial statements of listed companies ranged from 0.05% of turnover to 0.31% (and the range for the recurring cost in subsequent years was 0.008% to 0.06% – in both cases costs as a proportion of turnover declined with firm size).

Constraints on product design and reduced variety
This potential problem is at the heart of some of the hostility to a single set of accounting standards for the world – the topic of Section 5: we outline the objections there.

4. How many standards? Four lessons from economics

Our objective in Sections 4 and 5 of this paper is to explore what lessons we can draw from the above on the desirability (or otherwise) of having a single standard. This section draws out four lessons from the economics literature surveyed above about the optimum number of standards in different circumstances.

None of these constitute a direct answer to the question: ‘should there be a single global account-

ing standard?’ Rather, they provide four examples of how the same trade-off between the case for a single standard and the case for variety is resolved.¹⁴

4.1. The simple theory of standards races

The simple theory of standards races (David, 1985; Farrell and Saloner, 1985; Katz and Shapiro, 1985) gives useful insights into the conditions under which it is desirable to have a single standard and the conditions under which it is better to have more than one standard.

By considering the models developed by Farrell and Saloner (1985) and Katz and Shapiro (1985) it can be shown that if the following conditions apply:

- (a) there is little demand for product variety per se,
- (b) network effects are unbounded above,
- (c) there is no anti-competitive risk from having a single standard,

then a single standard may be the ‘right’ solution.

This can be explained intuitively. If there is little demand for product variety per se, then there is no loss from having only a single variant in the market. If network effects are unbounded above, then the value that a user obtains from using the same system¹⁵ as lots of other people continues to increase without limit as the network of users grows. In that case, it is always beneficial to make the network of users of the same system as large as possible. And if there is no risk of monopolistic abuse of a single standard, then again there is no reason to avoid having just the one standard.

However, this result depends critically on the assumptions made. If there is a strong demand for product variety, then a single standard will be unduly constraining for at least some users. In addition, Arthur (1989) has shown that if network effects are bounded above, then it is likely that the outcome of a standards race will be that two or more standards emerge in parallel, and that is for the best. Moreover, we know from experience in a number of markets that when a market is dominated by a single de facto (and proprietary) standard, monopolistic abuse is common (see Section 2.2).

Indeed, we could argue that conditions (a) and (c) are unlikely but not impossible. And Swann (2002) has argued that (b) is highly implausible. Why is that? The argument is slightly different for direct and indirect network effects. To put it simply, in the case of the former, the benefits we enjoy as ever more people join a network tend to tail off after a while because the new recruits are unknown to us and we have no wish to communicate with them. Or, in the case of the latter, we obtain all the indirect network benefits we want when the network reaches some given size and further increases in network size bring no further benefits.¹⁶

¹⁴ There is a related question: does the adoption of a single set of accounting standards presume convergence in models of corporate governance? There is some discussion of this in the literature on corporate governance (e.g. Hansmann and Kraakman, 2004; Hertig, 2004).

¹⁵ This argument applies to all kinds of products, services, technologies or systems. For economy of exposition, we use the word ‘system’ to refer to all of these.

¹⁶ In the discussion after our lecture, some suggested that the use of common accounting standards might be one example where network effects are indeed unbounded above. Consider a large, multinational company which is both horizontally and vertically integrated: call it X. Such a company might, in principle, wish to do business with almost any company in the world. So each time another firm joins the community using a global standard, whichever firm it is and wherever it is located, then X will derive some additional benefit. However, X would have to be an exceptional company to experience this unlimited growth of network effects. Most companies have geographical or sectoral limits to their interests and so network effects reach a maximum when all the related firms in their sectors and countries of operation have adopted the same standard. And for small firms, network effects from the use of common accounting standards would reach a maximum quite quickly.

4.2. *Standards and variety: simulation model*

Some simple models of horizontal and vertical product differentiation can give us a handle on the very difficult question of whether markets generate too much or too little product variety. Swann (2007) develops a simple model which incorporates various types of variety-reduction standard. In this model innovators can introduce product innovations as add-ons that build on existing products. Each add-on can either alter the horizontal product characteristics of the base product or increase the vertical product quality of the base product, or offer some combination of these. But innovators can only market add-ons that build on existing products if either: (a) these are their own products; or (b) these are available as open standards. If they are proprietary standards, then only the owner of the proprietary standard can sell add-ons that build on the existing product.

The model has one essential feature which drives the results. The magnitude of any innovation embodied in an add-on depends on the potential market share that might be captured by that add-on. If the add-on is one of just a few that will be offered at a particular time (n is small), then innovators find it viable (and profitable) to sell substantial innovations. If, by contrast, the add-on is one of very many offered at a particular time (n is large), then innovators only find it viable to sell rather modest innovations.

These features of the model give it the same character as the model of standards sketched in Swann (2000). Standardisation does for innovation something similar to what pruning does for fruit trees. A programme of pruning may constrain the shape of the tree and limit growth in some directions in the short term. But in the longer term, pruning promotes a healthy shape in the tree and helps to maximise the amount of useable fruit that can be harvested. In the same way, standardisation constrains innovation options in the short term, but by promoting healthy market development can maximise useful product variety in the long term.

The conclusions to be drawn depend in detail on the model parameters. But a fairly general conclusion appears. The optimum number of variety reducing standards is generally for *three* add-ons at any stage. This generates a happy balance of horizontal product variety and vertical product quality. By contrast, one standard does not generate nearly enough variety. Two standards may do, but it cannot be guaranteed. But in this model, there is little

to be gained from having more than three or four standards. In that case, the overall product variety and vertical product quality is reduced – although that smaller product space will be very densely packed. It is interesting that very many empirical standards races turn into contests between two or three competing standards, and it is interesting to speculate on whether that outcome is, in fact, an efficient solution to the dual requirements of variety and market size.¹⁷

4.3. *Optimum number of varieties*

A very interesting and detailed study by Bongers (1982) set out to compute the optimum number of product varieties in a particular market. His paper addresses two issues. If there is to be a limited variety (n) of products in a product range, what is the best set of varieties? And, what is the right *number* of varieties (n)?

Bongers analyses these questions with reference to the case of concrete posts. It may be that accounting professionals do not find this apparent comparison very complimentary! However, we hope they will not be offended and will read on, because there is an important lesson to be learnt from this study.

Bongers (1982) showed that it is best if the density of the product range follows the distribution of demand: the distances between the different varieties should be lower near the peak of the density function and higher in the tails of the distribution. He found that, depending on some assumptions, the optimum number of posts was between 5 and 10. Bongers went on to compare his optimum with the actual size patterns in the Dutch (Nen) Standard. The Dutch standard recommends 7 standard sizes, which is right in the middle of his computed range (5–10). But he found that the Nen varieties do not follow the density of demand as they should. With the Nen standards, there are too many varieties in the upper tail, while in the optimised pattern, the designs are compressed in the region of the peak, and much more dispersed in the tail.

For our present purposes, however, the most interesting result is this. Bongers shows that adjustment costs (born by the customer) can rise sharply if n is made too small. Too few standards can impose substantial costs on customers because there is too little variety.

What can we learn from this? The uses to which concrete posts are more limited and straightforward than the uses of accounting standards. But even so, the market still requires some variety to satisfy the various different uses. If that is true of concrete posts, then surely it is also true of accounting standards which are put to many different uses by many different people? For any one use, perhaps, a single standard is sufficient and desir-

¹⁷ However, we need to stress that the above results depend on the assumption that standards are open. If they are closed, then simulations with low values of n generate outcomes with a limited number of horizontally differentiated products. The range may be quite large but the product space is not densely packed. So if standards are closed, the outcomes of simulations with larger n are preferable to those with a smaller n .

able. But when we recognise the multifarious uses of accounting standards, then a single standard is not sufficient.

4.4. Standards and innovation: empirical evidence

The work of Temple et al. (2005) uses data from the Community Innovation Survey (CIS3) and the BSI Online database of standards to examine whether standards enable or constrain innovation, or both. We saw above that constraining and helping go hand in hand. If standards help innovation it is more likely than not that they will also constrain innovation. And if standards constrain innovation, it is more likely than not that they will also help innovation.

That research also examined whether there was any evidence connecting the number and vintage of standards and their tendency to constrain innovators. Temple et al. (2005) found that:

- If stock of standards is 'too small' or 'too large', then standards are more likely to constrain innovation.
- If stock of standards is 'too old' or 'too young', then standards are more likely to constrain innovation.

In short, there is an optimum number of standards for any industry and it must be neither too large nor too small. Equally, there is an optimum vintage for standards: neither too old nor too young.

Of course, technology standards become outdated quite rapidly – much more rapidly, we suspect, than accounting standards. So that part of the story will not carry over. But the story about an optimum number may be relevant.

In concluding this section, can we draw any general answers from the above to the fundamental question: what is the 'right' number of standards? In truth, we have to concede that the economics literature provides no simple answer to this question. But we can say that only in rather special circumstances is a *single* standard the 'right' answer. Generally speaking, the optimum number is small but greater than one.¹⁸

5. A single set of global accounting standards?

This section explores particular features of the accounting context which inform the choice between a single set of global standards or continuing diversity.

¹⁸ A referee of this journal noted that the absence of a single global standard for electric sockets is not a particularly serious issue. Even the frequent traveller can manage the diversity of sockets in the US, the UK and the EU by using an adaptor. This might not be a viable option if every single country had a different standard but it is viable if the number of standards is small.

¹⁹ Again we are grateful to Chris Nobes for the details.

5.1. The prima facie case for global accounting standards: rapidly globalising financial markets; information 'lost in translation'

Historically, standardisation of financial accounting has tended to follow the integration of the markets served by the accounts. For example, the move to unified national accounting in the US in the early 20th century followed the integration of the national economy. Similarly the present impetus for global accounting standards follows the accelerating integration of the world economy. Figure 1 provides one illustration of this integration, charting the growth in UK portfolio investment abroad in equities in the last 20 years. In the decade ending 1996, the mean level of annual investment was towards £6 billion; in the subsequent decade, it reached over £23 billion.

Table 1 illustrates the problem which diverse accounting standards present to participants in those international markets, reporting an example from Nobes (1997). When Daimler Benz became the first German company to list on the New York Stock Exchange, it published for 1993 net income figures compiled according to both German and US standards. The comparison provides a telling (admittedly, extreme) suggestion of the information which might be lost in translation between accounting regimes. One set of accounting conventions produced a profit of some six hundred million DM, the other a loss of over eighteen hundred million.

Table 1
Daimler Benz net income, 1993

	<i>DM million</i>
German GAAP	615
US GAAP	-1,893

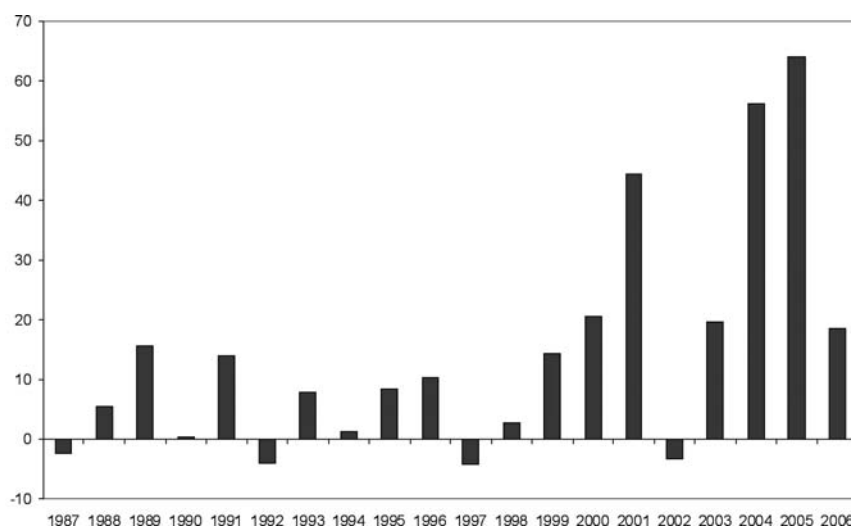
Source: Nobes (1997)

Another famous example is the transition of Vodafone from UK rules to IFRS for the half-year to 30 September 2004: a UK loss of £3,195m turned into an IFRS profit of £3,615m.¹⁹

Prima facie, the case for common standards in such circumstances is compelling: without them, cross-border portfolio and direct investment may be distorted, cross-border monitoring of management by shareholders obstructed, and cross-border contracting inhibited; or the cost of these activities may be needlessly inflated by complex translation. This section considers whether the benefits of diminishing these accounting barriers between markets dominate the costs of operating global, rather than local, standards.

Figure 1
UK portfolio investment abroad: equity securities

(£billion, current prices)



Source: National Statistics, *Financial Statistics*, Table 14.1F, March 2008 and earlier issues.

5.2. Trading off the benefits and costs of a single global set of standards

In reviewing the economics of standards, Section 4.1 points to a number of trade-offs in determining the optimal number of standard-setters. Other fields of economics which deal with analogous decisions – whether to integrate into a single market, whether to rely on a single supplier – similarly point to tensions between conflicting considerations and the resulting trade-offs facing policy-makers. For example, the economics of currency unions (Gregory, 1987) recognise the reduced transaction costs and entry barriers from a common currency, but also the potential costs for a participant economy of being locked into an exchange rate with the rest of the world when it has become inappropriate. The traveller or trader within the union is saved the costs of exchanging, say, francs for lira; but the exporter may be forced out of business by an exchange rate with the rest of the world higher than would have prevailed had the national currency remained independent. Then the economics of customs unions (Hazlewood, 1987) has to weigh up the union's effects on trade creation as compared to its effects on trade diversion. Thus the domestic producer of sugar beet may flourish within the union while the sugar cane grower outside the union (who can produce sugar at lower cost) may perish. Finally, the economics of monopoly (Scherer and Ross, 1990) set the scale economies gained by a new monopolist who has integrated the production of former rivals against the consumer

surplus foregone by former customers whom the new monopolist can now price out of the market.

Inevitably, determining the optimal scope for the jurisdiction of accounting standard-setting – whether to have several 'unions' for standard-setting or just one – is likewise characterised by a series of trade-offs²⁰ and cost-benefit calculations. This section outlines the headings which might appear in such a cost-benefit analysis, or 'profit and loss account', for global standards; and suggests some of the evidence available to populate that account.

Costs of the regulator

These are the most visible costs of standards. In many economic discussions of consolidating production in one supplier (as it were, the IASB), avoiding cost duplication and securing scale economies would loom large. But in the accounting case the impact of replacing several standard-setters with a single producer may not be great. This is for three reasons. First, set against the total cost of quality control in the provision of financial information, the standard-setter's costs are small: Section 3 reports a figure equivalent to just one-tenth of 1% of the aggregate audit fee of the regulatees. Second, the multiple regulators already share production costs, via joint research projects,

²⁰ Often the benefits and costs accrue to different people: changes are not Pareto-improving. We do not pursue the resultant social choice problems, which are analysed in Bromwich's (1985) pioneering study of the economics of accounting standards.

so duplication has been reduced, without consolidating into one regulator. And third, it is likely that different countries or regions would need to retain some local regulatory capacity (as with the UK's ASB) in order to mediate between the global standard-setter and local markets and institutions, and to deal with reporting entities outside the remit of a global standard-setter (see below).²¹

Compliance costs for the regulatee

The potential impact on these costs of moving to a single set of global standards is ambiguous. If, on average, the new global regime is more demanding than the ones it replaces, total compliance costs will rise; and vice versa.

Regulatees report very high estimates for these costs in the most demanding current regime, the US. The total compliance cost of maintaining their US listing (not just accounting costs) for cross-listed German Dax 30 companies has been reported as £21m to £56m per company per annum (Jenkins, 2004). However, such numbers were supplied in the course of lobbying to relax some of the regulatory requirements: the suppliers of the data therefore had an interest in overstating the burden of regulation. Such response bias is widely encountered in relation to this element of cost (SIB, 1995, 1997; FASB, 1988). And Section 3 above reports much smaller compliance cost estimates associated with even very substantial changes in regulation – estimates of the same (small) order of magnitude as the regulator's costs.

Loss of competition in standard-setting

It is an irony that fostering the most competitive stock market – covering the whole world – via global accounting standards, means assigning production of the standards to a single monopoly supplier. And the costs of assigning standard-setting to a monopoly need to be set against the benefits from creating more competitive capital markets.

The work of Zeff (2002), on the political element in standard-setting, suggests one reason why such a monopoly could have efficiency costs. For example, he describes the evolution of US policy on accounting for business combinations. In 1999, on a calculation of the net economic benefits, the US standard-setter, FASB, called for the mandatory amortisation of goodwill (the elimination of pooling, which had allowed some firms to escape amortisation). But FASB encountered political resistance in the US Senate, which had been lobbied

by special interest groups; and by 2001 the Exposure Draft issued by FASB submitted to this political pressure: the resulting standards (SFAS 141 and 142) disallowed amortisation altogether.

Is the political distortion of standard-setting any more problematic for a global standard-setter than for national or regional ones? Dye and Sunder (2001) suggest that the political problems could be significantly worse: they argue that the larger the constituency of the standard-setter, the fewer disclosure requirements the constituents will agree on; so the result will be more lax standards than could be secured for a smaller jurisdiction, and consequently there will be more scope for earnings management.

A further difference is that if there is some competition among standard-setters, the market can 'punish' the local standard-setter for its mistakes. We noted above the fears of the Chairman of FASB that the heavy demands of the US standard-setter would deter firms from listing in the US market, and the evidence from Zeff that the London stock market had overtaken New York in the number and value of foreign listings.

But this correction mechanism disappears if firms have no alternative market. They can no longer 'walk with their feet' if the regulators get it wrong.

Another drawback of a monopoly regulator is that it might stifle innovation. While FASB was engaged in a political struggle in the US over its plans to outlaw amortisation, the UK's Accounting Standards Board developed and introduced an alternative approach to purchased goodwill – the innovation of impairment tests, first proposed by UK academics Arnold et al. (1992).²² This new and relatively radical practice was subsequently adopted – on a wider scale – first by FASB and then by IASB (Li and Meeks (2006)).

Loss of bespoke accounting standards

The debate on global standards has produced several variants of the argument that local conditions demand diverse local accounting standards.

(a) Diverse local capital markets

One variant of this argument is that financing arrangements differ locally, and these produce diverse financial reporting needs (e.g. Fearnley and Sunder, 2005). For example, some economies have relied much more heavily on intimate, bank-based financing, rather than 'Anglo-Saxon' arm's length stock markets (e.g. Cable, 1985). The German banker, sitting on the supervisory board of a client company, controlling not just bank-owned equity but also the proxy votes of the bank's retail customers and the supply of debt finance, does not have to rely for information on the company's published reports. So why, it is asked, impose the alien and expensive reporting standards which have been developed in foreign markets?

Of course, the reporting needs of private compa-

²¹ Otherwise national considerations are likely to be neglected by the international standard-setter. In addition, the local reporting entities outside the stock market (e.g. unlisted firms, not for profit organisations) – more numerous than listed companies – may lose the network benefits of links to the regulated sector. Also, accounting innovation often originates with national standard-setters – see below.

²² Building on work by Graham Stacy and David Tweedie.

nies and of other organisations are different from those of public listed companies, and may vary with institutional differences across countries. But the notion of a single global set of standards is normally interpreted as being one for public listed companies. Other organisations are generally dealt with by having a hierarchy of accounting requirements in the local economy. In the US, for example, private companies are exempt from FASB standards. But this points to another trade-off: the more onerous are any global standards for public companies, the fewer private businesses will reap the network benefits of participating in the standard reporting language of the public markets.

However, it is not clear that the information needs of a shareholder in a public market vary significantly across national boundaries. And, indeed, considering the German illustration, the presence of some shareholders in a public company with privileged access to information raises questions about minority shareholder rights and insider dealing. These are areas where rigorous mandated public disclosure is often seen as an especially valuable safeguard.

(b) *Diverse local enforcement*

Ball (2006) emphasises the poor quality of enforcement in some jurisdictions participating in IFRS. In part, this is a problem of audit, focussing on doubts whether international standards would be fully implemented in practice, even though the preparers were paying lip service to the standards. This is a problem which can be mitigated through market mechanisms: firms in countries with weaker audit traditions and practices could hire expensive Big Four international auditors to vouch for their quality and compliance with IFRS (just as private companies with local auditors sometimes turn to more prestigious auditors when going public). But Ball points also to less tractable problems when transplanting accounting standards from common law countries to code law settings with less respect for protecting shareholder value and minority rights.

(c) *Diverse local economies*

A third argument for diversity in reporting is that some disclosures or procedures which may be desirable for highly developed economies may be infeasible in less developed ones. An example might be the adoption of fair value reporting, which it might be feasible to implement in a large advanced economy with liquid markets for the asset in question, but not in a small economy with no such market (Ball, 2006).

Of course, whilst it is true that such problems will be more acute in smaller, more isolated economies, they are not absent from the most highly developed economies: mark to market is easier for assets such as government securities than for, say, the Channel Tunnel, and alternative measure-

ment and disclosure arrangements are generally necessary anyway for when suitable liquid markets do not exist. It is just that these would have to be relied upon more frequently in smaller economies with illiquid markets; and this difference would hamper comparison of accounts across countries.

5.3. *Gains from integration in a larger, more competitive market*

Global accounting standards would enable the world's stock markets to become more closely integrated. Other things being equal, the larger the market, the greater the scope for competition among buyers and sellers and for the division of labour – key drivers of efficiency in Adam Smith's scheme. The larger market expands the opportunities for risk-sharing and risk-matching. The more closely the world's stock markets approach a single market, therefore, the lower should be the transaction costs for investors and the cost of capital for firms in that market. Crucial to the calculation, then, are estimates of the cost penalties from operating in markets smaller than a single world market, or – put the other way round – the gains which would arise from moving from smaller, segmented markets, divided by different accounting standards, to a single integrated global market.

Transaction costs

(a) *Bid-ask spreads*

Table 2 reports estimates of bid-ask spreads, which affect the cost of actively trading a portfolio. The

Table 2
Average bid-ask spreads for different stock markets

<i>Market</i>	<i>Mean bid-ask</i>	<i>Average firms per month</i>
United Kingdom	0.022	537
France	0.026	374
Germany	0.037	450
Hong Kong	0.150	188
Denmark	0.194	36
Belgium	0.201	22
Italy	0.202	75

Notes

- (1) All figures are time-series averages of the monthly bid-ask spreads, Jan. 1998 – Oct. 2007.
- (2) Includes all firms listed on the respective country all-share index.
- (3) Bid-ask spreads smaller than zero or larger than 1 were filtered out.
- (4) Spreads are measured as the difference between ask and bid price and given in the table as a percentage of bid price.
- (5) Estimated using data from Thomson Financial Datastream.

table shows a large difference in the spread for small markets compared with large ones – of the order of 20% for the smaller markets such as Belgium or Denmark, but narrowing to around 2.5% for the larger French market – substantially reducing investors' costs of trading. However, at first sight (this is only a simple bivariate comparison, with no allowance for other influences on international differences), the gains from further scale are small: the figure is 2.2% for the larger UK market.

(b) Translation costs for multinational companies

Much of the early impetus for global accounting standards came from multinational companies whose subsidiaries had to report for some purposes (e.g. tax, local borrowing, local benchmarking) using local accounting regulations, but then convert and consolidate these numbers into a different framework for reports on global operations in the market(s) where they were listed. We know no estimates of the costs of translation in such circumstances, but for companies such as ExxonMobil or HSBC, which operate in 40 and 79 countries respectively, they must have been considerable when many of these countries operated idiosyncratic standards.

Cost of capital

The literature gives a number of indications of the economic value of larger, more integrated capital markets; and this provides suggestive evidence of the benefit of further integration. Hail and Leuz (2006) calculate the implied cost of equity capital for different national markets. Raw data on the cost show only the slightest differences across the large developed economies – the estimates for the US and for the middle-sized UK and German markets were 10.2%, 10.6% and 10.1% respectively. However, much more substantial differences emerge for smaller, less developed economies – thus Sri Lanka records a figure of 17.0% and Egypt 25.3%.

Hail and Leuz explain that these raw differences could reflect a range of international influences apart from the scale of the respective market. They allow for these in their multivariate econometric work, but the same general result is confirmed: the differences in cost of capital were 'strongest for markets that are least integrated [with world financial markets]' and 'the effects are substantially smaller, and in several cases insignificant, in countries with integrated capital markets' (p. 524).

The evidence of substantial benefits for firms located in small segmented capital markets from gaining access to larger pools of capital in the international markets is corroborated by the work of Errunza and Miller (2000). They trace the impact on the cost of capital of firms which used American depositary receipts (ADRs). These were

often firms from small segmented home markets. And they find a substantial beneficial impact on the firms' cost of capital as a result of gaining access to the larger market – a reduction of as much as 40%.

The suggestion that the benefits of integration are more muted for firms which already enjoy access to substantial capital markets is supported by the study of Daske (2006), which estimates the impact on the cost of capital of German firms which pre-adopted international accounting standards – before the European Union mandated their publication. Such firms therefore stood to gain the benefits from common accounting standards of greater accessibility to international finance. However, the study fails to find evidence of any beneficial effect on the cost of capital from this new standardised disclosure for these firms from a medium-sized home market.

All the studies qualify their results extensively, acknowledging the difficulty of measuring the cost of capital, let alone identifying the contributions of different explanatory variables when limited data are available. Nevertheless, some consistency emerges: the benefits of improved access to the larger pool of capital can be very substantial for firms from small segmented markets, but the scale economies seem to diminish as the size of the home market increases.

6. Concluding remarks

In his (rather sceptical) review of the pros and cons of IFRS for investors, Ball (2006) emphasises that 'the clear majority of economic ... activity remains intranational' (p. 16). This is a perspective which is perhaps easier to sustain from a standpoint within the huge US economy than it is for economies at the other end of the size range and heavily reliant on international trade and investment, e.g. Luxembourg or Singapore. And in the light of the very rapid growth we illustrated for international financial transactions, it is not clear how long it will be sustainable even for the US financial system. The differences in international reporting practice prior to IFRS – which we illustrated with the Daimler Benz comparison – constituted a palpable barrier to efficient international investment, monitoring and contracting. And the literature suggests that being confined to small segmented capital markets imposes a substantially larger cost of capital on firms and transaction costs on investors, which would inhibit much worthwhile investment. Although we do not have available all elements of the cost-benefit calculation, the evidence points to substantial net gains for smaller economies which have joined the IFRS regime.

As Sections 2 and 4 have reported, the economics of standards in other markets suggest that in a

range of circumstances the optimal number of standards has exceeded one. Important issues identified by the economists' analysis include whether network benefits are unbounded above. Some suggestive evidence on such issues is presented for the accounting case in Sections 3 and 5. But our evidence is not decisive on whether a single monopoly standard-setter for the world would be superior to, say, a duopoly of IASB and FASB. First, the gains from eliminating duplication in standard-setting are unlikely to be large. Then, while the minimum efficient size of a stock market exceeds that of many of the smaller national markets, and the scale economies available from integrating, say, the Sri Lankan or Egyptian markets are substantial, the further scale economies from integrating, say, the London market with New York may be less compelling; and this is consistent with London's success in attracting international listings despite its smaller size. Moreover, the literature has identified a number of potential drawbacks in the monopolisation of accounting standards – not least the loss of market discipline – a competitor system – for standard-setters who get it wrong (perhaps under political pressure), and the possibility of innovation being stifled.

7. A postscript

In the discussion after our lecture, Professor Geoffrey Whittington drew a parallel between global accounting standards and standards for the WWW. This is a most interesting analogy and worthy of some comment.

At first sight, we might think that the WWW is a powerful example of what can be achieved if we have an ubiquitous global standard which is broad in scope. But in fact, the standards that do exist on the WWW are not quite like that.

Tim Berners-Lee (1999), who more than anyone else can be credited with the invention of the WWW, has written a fascinating account of its development. Berners-Lee outlines areas where common standards are required – the analogue of accounting questions addressed by standard-setters. He emphasises that a key objective in achieving a global standard for the WWW was for the standard protocols to aim for just a *lowest common denominator* (LCD) of communication:

'I would have to create a system with common rules that would be acceptable to everyone. This meant as close as possible to no rules at all.' (Berners-Lee, 1999: 17)

It was clear to him that there was no future in trying to shoe-horn existing users into a broad-ranging common standard which varied from their current use, as they would simply rebel at the idea. His great achievement was to show that a lowest common denominator protocol would suffice for

most purposes:

'Making global standards is hard. The larger the number of people who are involved, the worse it is. In actuality, people can work together with only a few global understandings, and many local and regional ones... operating on such "partial understanding" is fundamental, and we do it all the time in the nonelectronic world.' (Berners-Lee, 1999: 203–204)

The WWW is based on some lowest common denominator protocols which define rules for when and how computers can talk to each other. When computers agree to talk, they have to choose a language in which they can understand each other. If they both make routine use of the same applications software, then they can choose that as the common language. If they do not, then they can both translate into HTML. This may put some constraints on the extent to which they can share information and some things are lost in translation, but HTML is sufficient for many of the most basic exchanges.²³

Returning to accounting standards, Professor Whittington asked whether the analogy was useful for accounting – whether one approach might be for the international standard-setter to aim just for a basic LCD level of acceptable disclosure. Local standard-setters would be obliged to provide the core international standard material but would be free, if they wish, to embellish with extra demands for the local market.

The experience of the WWW does indeed present a challenging benchmark when reviewing the case for a single set of global accounting standards and when reviewing the form that accounting standards should take – skeletal (LCD) or comprehensive. What, if anything, distinguishes accounting standards from WWW standards? Why is the globalisation of standards controversial for accounting, and not for the WWW?²⁴

These questions could perhaps be addressed by comparing the history of the WWW with that of international accounting standards. The work of the IASC, the forerunner of the IASB, could be interpreted as the search for LCD standards, which allowed substantial local diversity within the common framework, and were voluntary rather than mandatory (Camfferman and Zeff (2007)). Why

²³ One referee has suggested that as the WWW evolves into WEB 2.0, this metaphor for accounting standards may become even more relevant. In an era where firms and investors use Web 2.0 to facilitate a much richer and spontaneous interaction, the implications for the development of accounting are potentially very interesting.

²⁴ Similar questions might be asked in relation to the parallels with customs unions and currency unions mentioned earlier: in those cases, by contrast, the world has not adopted a single currency or a single customs union.

did the LCD prevail for the WWW but not with the IASC? Again, there has been pressure on the IASB to move further still from LCD – to narrow options in accounting, as in the ‘carve-out’ arrangements for valuing financial instruments (e.g. ASB (2004)).

Has this evolution of accounting standards away from the WWW model been a mistake; or are there crucial characteristics which distinguish accounting from the WWW, and argue in favour of a different solution?

References

- Akerlof, G. (1970). ‘The market for lemons’, *Quarterly Journal of Economics*, 84(3): 488–500.
- Akkermans, H.A. and van der Horst, H. (2002). ‘Managing IT infrastructure standardisation in the networked manufacturing firm.’ *International Journal of Production Economics*, 75(1–2): 213–228.
- ANSI (2000). *National Standards Strategy for the United States*. Washington, DC: ANSI.
- Antonelli, C. (1994) ‘Localized technological change and the evolution of standards as economic institutions’, *Information Economics and Policy*, 6: 195–216.
- Archibald, T. (1972). ‘Stock market reaction to depreciation switch-back’. *Accounting Review*, 22–30.
- Arthur, W. B. (1989). ‘Competing technologies, increasing returns, and lock-in by historical events’. *Economic Journal*, 99 (394): 116–131.
- Arnold, J., Egginton, D., Kirkham, L., Macve, R. and Peasenell, K. (1992). *Goodwill and Other Intangibles*, London: ICAEW.
- ASB (2004). *ASB Issues Guidance on the ‘carved out’ IAS 39*. Accounting Standards Board Press Notice 262.
- Asquith, P., Beatty, A. and Weber, J. (2005). ‘Performance pricing in debt contracts’. *Journal of Accounting and Economics*, 40: 101–128.
- Babbage, C. (1835). *On the Economy of Machinery and Manufactures*, 4th edn, London: Charles Knight.
- Bacharach, M. (1991) ‘Commodities, language and desire’, *Journal of Philosophy*, 87(7): 346–368.
- Ball, R. (1999). *Daimler-Benz AG: evolution of corporate governance from a code-law ‘stakeholder’ to a common-law ‘shareholder value’ system*, paper presented to the 1999 FAAR Conference, London.
- Ball, R. (2006). ‘International Financial Reporting Standards: Pros and Cons for Investors.’ *Accounting and Business Research*, International Accounting Policy Forum, 5–27 (based on P D Leake Lecture, September 2005).
- Beghin, J.C. and Bureau, J.-C. (2001). ‘Quantitative policy analysis of sanitary, phyo-sanitary and technical barriers to trade’. *Économie Internationale*, 87: 107–130.
- Beresford, D. (1991). ‘Comparability, competition and cost’ in *FASB* (1991).
- Berg, S. V. (1989). ‘The production of compatibility: technical standards as collective goods’. *KYKLOS*, 42: 361–383.
- Berle, A. and Means, G. (1932). *The Modern Corporation and Private Property*. New York, NY: Macmillan.
- Berners-Lee T. (1999). *Weaving the Web: The Past Present and Future of the World Wide Web by its Inventor*. London: Orion Business Books.
- Besanko, D. (1987). ‘Performance versus design standards in the regulation of pollution’. *Journal of Public Economics*, 34(1): 19–44.
- Blind K. (2004) *The Economics of Standards: Theory, Evidence and Policy*, Cheltenham: Edward Elgar.
- Blois, K.J. (1990). ‘Transaction costs and networks’. *Strategic Management Journal*, 11: 493–96.
- Bongers, C. (1982). ‘Optimal size selection in standardization: a case study’. *Journal of the Operational Research Society*, 33(9): 793–799.
- Boom, A. (1995). ‘Asymmetric international minimum quality standards and vertical differentiation’. *Journal of Industrial Economics*, 43: 101–119.
- Botosan, C. (2006). ‘Disclosure and the cost of capital: what do we know?’. *Accounting and Business Research, Special Issue*, 36: 31–40.
- Botsari, A. and Meeks, G. (2008). ‘Do acquirers manage earnings prior to a share for share bid?’. *Journal of Business Finance and Accounting*, 35: 633–670.
- Bromwich, M. (1985). *The Economics of Accounting Standard Setting*. Englewood Cliffs, NJ: Prentice Hall/ICAEW.
- Bromwich, M. (1992). *Financial Reporting, Information and Capital Markets*. London: Pitman.
- Cable, J. (1985). ‘Capital market information and industrial performance’. *Economic Journal*, 95: 118–132.
- Camfferman, K. and Zeff, S.A. (2007). *Financial Reporting and Capital Markets: A History of the International Accounting Standards Committee, 1973–2000*. Oxford: Oxford University Press.
- Carsberg, B. and Page, M. (1984). ‘The cost of preparing current cost accounts’, in Carsberg and Page, eds., *Current Cost Accounting: the Benefits and the Costs*. London: ICAEW.
- Chatterjee, R. (2006). ‘Performance pricing and covenants in debt contracts in the UK’. *Judge Business School Working Paper 07/2006*, University of Cambridge.
- Citron, D. (1992). ‘Financial ratio covenants in UK bank loan contracts and accounting policy choice’. *Accounting and Business Research*, 22: 322–335.
- Daske, H. (2006). ‘Economic benefits of adopting IFRS or US-GAAP – has the expected cost of capital really decreased?’, *Journal of Business Finance and Accounting*, 33: 329–373.
- David, P.A. (1985). ‘Clio and the economics of QWERTY’. *American Economic Review (Proceedings)*, 75(2): 332–336.
- David, P.A. (1987). ‘Some new standards for the economics of standardisation in the information age’, in P. Dasgupta and P. Stoneman (eds.) *Economic Policy and Technological Performance*, Cambridge: Cambridge University Press.
- David, P.A. (1995). ‘Standardization policies for network technologies: The flux between freedom and order revisited’, in R. Hawkins, R. Mansell, and J. Skea (eds.), *Standards, Innovation and Competitiveness: The Politics and Economics of Standards in Natural and Technical Environments*, Cheltenham: Edward Elgar.
- Davison, I.H. (1987). *A View of the Room: Lloyd’s – Change and Disclosure*, London: Weidenfeld and Nicholson.
- den Butter, F.A.G., Groot, S.P.T. and Lazrak, F. (2007). ‘The Transaction Costs Perspective on Standards as a Source of Trade and Productivity Growth’, Tinbergen Institute Discussion Papers, 07-090/3. Paper available at: <http://www.tinbergen.nl/discussionpapers/07090.pdf>.
- DIN (2000). *Economic Benefits of Standardization*, Berlin: Beuth Verlag.
- DTI (1990). Alexander Howden Holdings plc. *Interim and Final Reports by Sir Robert Alexander Gatehouse and Ian Glendinning Watt FCA*, London: HMSO.
- Dye, R.A. and Sunder, S. (2001). ‘Why not allow FASB

- and IASB standards to compete in the U.S.?' *Accounting Horizons*, 15(3): 257–271.
- Erikson, M. and Wang, S-w. (1998). 'Earnings management by acquiring firms in stock for stock mergers'. *Journal of Accounting and Economics*, 27: 149–176.
- Errunza, V. and Miller, D. (2000). 'Market segmentation and the cost of capital in international equity markets'. *Journal of Financial and Quantitative Analysis*, 35(4): 577–600.
- Erwin, K.G. (1960) *Romance of Weights and Measures*. New York, NY: Viking Press.
- Fama, E. (1970). 'Efficient capital markets: a review of theory and empirical work', *Journal of Finance*, 25: 383–417.
- Farrell, J. (1995). 'Arguments for weaker intellectual property protection in network industries'. *StandardView*, 3(2), 46–49.
- Farrell, J. and Saloner, G. (1985). 'Standardisation, compatibility and innovation'. *RAND Journal of Economics*, 16(1): 70–83.
- FASB (1988), FASB public record on Statement of Financial Accounting Standards No. 96, *Accounting for Income Taxes*, Stamford, CT: FASB.
- FASB (1991), *Benefits, Costs and Consequences of Financial Accounting Standards*, Norwalk, CT: FASB.
- Fearnley, S. and Sunder, S. (2005). 'The headlong rush to global standards'. *Financial Times*, October 27, p. 9.
- Fearnley, S. and Sunder, S. (2007). 'Competition required to reduce standards complexities'. *Financial Times*, May 17, p. 19.
- Foray, D. (1998). 'Standards and innovation in technological dynamics'. *StandardView*, 6(2): 81–84.
- Forbes, W. and Watson, R. (1993). 'Managerial remuneration and corporate governance: a review of the issues, evidence and Cadbury Committee prospects'. *Accounting and Business Research*, 23: 331–338.
- Gabel, H. L. (ed. 1987). *Product Standardization and Competitive Strategy*. Amsterdam: North-Holland.
- Gabel, H. L. (1991). *Competitive Strategies for Product Standards: The Strategic Use of Compatibility Standards for Competitive Advantage*. London: McGraw Hill.
- Gregory, C. (1987). 'Currency areas', in J. Eatwell, M. Milgate and P. Newman (eds.), *The New Palgrave Dictionary of Economics*. London: Macmillan.
- Grindley, P. C. (1995). *Standards Strategy and Policy: Cases and Stories*. Oxford: Oxford University Press.
- Gwilliam D., Macve, R. and Meeks, G. (2005). 'The costs and benefits of accounting regulation: a case study of Lloyd's of London'. *Accounting and Business Research*, 35: 129–146.
- Hail, L. and Leuz, C. (2006). 'International differences in the cost of capital: do legal institutions and securities regulation matter?'. *Journal of Accounting Research*, 44(3): 485–531.
- Hansmann, H. and Kraakman, R. (2004). 'The end of history for corporate law', in J. N. Gordon and M. J. Roe (eds.), *Convergence and Persistence in Corporate Governance*, Cambridge University Press, 33–68.
- Hazlewood, A. (1987). 'Customs unions', in J. Eatwell, M. Milgate and P. Newman (eds.), *The New Palgrave Dictionary of Economics*. London: Macmillan.
- Hemenway, D. (1975). *Industrywide Voluntary Product Standards*. Cambridge, MA: Ballinger Publishing Company.
- Hertig, G. (2004). 'Convergence of substantive law and convergence of enforcement: a comparison', in J. N. Gordon and M. J. Roe (eds.), *Convergence and Persistence in Corporate Governance*. Cambridge University Press, 328–347.
- Hesser, W., Feilzer, A. and H. de Vries (eds. 2006) *Standardization in Companies and Markets*. Hamburg: Helmut Schmidt University.
- Hirshleifer, J. (1971). 'The private and social value of information and the reward to inventive activity'. *American Economic Review*, 561–573.
- Hong, H., Kaplan, R. and Mandelker, C. (1978). 'Pooling vs purchase: the effects of accounting for mergers on stock prices'. *Accounting Review*, 31–47.
- Hudson, J. and Jones, P. (1997). 'The gains of standardization from reduced search costs'. *Homo Oeconomica*, 14: 331–346.
- Hudson, J. and Jones, P. (2001). 'Measuring the efficiency of stochastic signals of product quality'. *Information Economics and Policy*, 13(1): 35–49.
- Hudson, J. and Jones, P. (2003). 'The impact of standardization on international trade'. *Homo Oeconomica*, 20: 1–19.
- ICAEW (2007). *EU Implementation of IFRS and the Fair Value Directive*, Paper Available at: <http://www.icaew.com/index.cfm?route=151992>.
- Jenkins, P. (2004). 'German groups rue US listings'. *Financial Times*, 19 November 2004: 47.
- Katz, M. L. and Shapiro, C. (1985). 'Network externalities, competition and compatibility'. *American Economic Review*, 75(3), 424–440.
- Lancaster, K.J. (1979). *Variety, Equity and Efficiency: Product Variety in an Industrial Society*. Oxford: Basil Blackwell.
- Langlois, R. N. (1992). 'External economies and economic progress: the case of the microcomputer industry'. *Business History Review*, 66(1): 1–50.
- Lecraw, D. J. (1984). 'Some economic effects of standards'. *Applied Economics*, 16: 507–522.
- Lecraw, D. J. (1987). 'Japanese standards: a barrier to trade?' in H.L. Gabel (ed.) *Product Standardisation and Competitive Strategy*, Amsterdam: North Holland, 29–46.
- Lehr, W. (1996). 'Compatibility standards and industry competition: two case studies'. *Economics of Innovation and New Technology*, 4(2), 97–112.
- Leland, H. E. (1979). 'Quacks, lemons, and licensing: a theory of minimum quality standards'. *Journal of Political Economy*, 87: 1328–1346.
- Lev, B. (1988). 'Toward a theory of equitable and efficient accounting policy'. *Accounting Review*, 63: 1–22.
- Li, K. and Meeks, G. (2006). 'The impairment of purchased goodwill: effects on market value', SSRN:<http://papers.ssrn.com/abstract=930979>.
- Liebowitz, S. J. and Margolis, S. E. (1990). 'The fable of the keys'. *Journal of Law and Economics*, 33: 1–25.
- Liebowitz, S. J. and Margolis, S. E. (1994). 'Network externality: an uncommon tragedy'. *Journal of Economic Perspectives*, 8(2), 133–150.
- Livernois, J. and McKenna, C. J. (1999). 'Truth or consequences: enforcing pollution standards with self-reporting'. *Journal of Public Economics*, 71 (3): 415–440.
- Lys, T. and Vincent, L. (1995). 'An analysis of value destruction in AT&T's acquisition of NCR'. *Journal of Financial Economics*, 39: 353–378.
- McIntyre, J. R. (ed. 1997) *Japan's Technical Standards: Implications for Global Trade and Competitiveness*. Westport, CT: Quorum.
- Maskus, K.E., Otsuki, T. and Wilson, J.S. (2005). 'An empirical framework for analyzing technical regulations and trade', in S. Henson and J.S. Wilson (eds.) *The WTO and Technical Barriers to Trade*, Cheltenham: Edward Elgar.
- Meeks, G. (2002). 'Akerlof, accounting scandals and accounting regulation', University of Cambridge Discussion Paper.

- Meeks, G. and Meeks, J. G. (2002). *Towards a Cost-Benefit Analysis of Accounting Regulation*, London: Institute of Chartered Accountants in England and Wales, Centre for Business Performance.
- Meeks, G. and Whittington, G. (1975). 'Directors' pay, growth and profitability'. *Journal of Industrial Economics*, 24: 1–14.
- Neill, Sir Patrick, QC (Chairman) (1987). *Regulatory Arrangements at Lloyd's: Report of the Committee of Enquiry*. London: HMSO.
- Nobes, C. (1997) *German Accounting Explained: Reducing the Barriers to Measuring Company Performance in Europe's Largest Economy*. London: FT Finance/Pearson Professional.
- North, D.C. (1990). *Institutions, Institutional Change and Economic Performance*. Cambridge (MA): Cambridge University Press.
- Office for National Statistics (2008). *Financial Statistics*. London: HMSO.
- OTA (1992). *Global Standards: Building Blocks for the Future*, Congress of the United States: Office of Technology Assessment. Washington DC: US Govt. Printing Office.
- Reddy, M. N. (1987). 'Technology standards and markets: a market institutionalization perspective', in H.L. Gabel (ed.) *Product Standardization and Competitive Strategy*. Amsterdam: North-Holland, 47–66.
- Rohlf, J. (1974). 'A theory of interdependent demand for a communications service', *Bell Journal of Economics*, 5(1): 16–37.
- Salop, S. C. and Scheffman, D. T. (1983). 'Raising rivals' costs', *American Economic Review: Papers and Proceedings*, 73(2): 267–71.
- Scherer, F. and Ross, D. (1990). *Industrial Market Structure and Economic Performance*, 3rd edn. Boston: Houghton Mifflin Company.
- Schumpeter, J. A. (1954). *Capitalism, Socialism and Democracy*, 4th edn. London: Unwin University Books.
- Scott, D. and Upton, W. (1991). 'The role of cost-benefit considerations in the FASB's standards-setting process', in FASB (1991).
- Shleifer, A. and Vishny, R. (1997). 'A survey of corporate governance'. *Journal of Finance*, 52: 737–783.
- Shleifer, A. and Vishny, R. (2003). 'Stock market driven acquisitions'. *Journal of Financial Economics*, 70: 295–311.
- SIB (1995). 'Cost-benefit analysis of the proposal to make custody an authorisable activity'. London: Securities and Investments Board.
- SIB (1997). 'Cost-benefit analysis of non-life cooling off'. London: Securities and Investments Board.
- Skinner, F. G. (1954). 'Measures and weights', in C. Singer, E.J. Holmyard and A.R. Hall (eds.), *A History of Technology Vol. I: From Early Times to Fall of Ancient Empires*. London: Oxford University Press.
- Smith, A. (1776/1904). *An Inquiry into the Nature and Causes of the Wealth of Nations: Volumes I and II*. London: Methuen.
- Smith, T. (1996). *Accounting for Growth*, 2nd edn. London: Century Books.
- Solomons, D. (1986). *Making Accounting Policy*. Oxford University Press.
- Swann, G.M.P. (1990). 'Standards and the growth of a software network: a case study of PC applications software', in J. Berg and H. Schumny (eds.), *An Analysis of the IT Standardisation Process*. Amsterdam: Elsevier Science Publishers.
- Swann, G.M.P., Temple, P. and Shurmer, M. (1996). 'Standards and trade performance: the British experience'. *Economic Journal*, 106: 1297–1313.
- Swann, G.M.P. (2000). *The Economics of Standardization*, Report for Department of Trade and Industry. Report available at: <http://www.berr.gov.uk/files/file11312.pdf> References at: <http://www.berr.gov.uk/files/file11316.pdf>.
- Swann, G.M.P. (2002). 'The functional form of network effects'. *Information Economics and Policy*, 14, 417–429.
- Swann, G.M.P. (2007). *Horizontal and Vertical Product Innovation with Standards*, Unpublished Paper, Nottingham University Business School, June.
- Tassey G. (1982). 'The role of Government in supporting measurement standards for high-technology industries'. *Research Policy*, 11: 311–320.
- Taylor, P. and Turley, S. (1986). *The Regulation of Accounting*, Oxford: Basil Blackwell.
- Temple, P., Blind, K., Jungmittag, A., Spencer C., Swann, G.M.P. and Witt R. (2005). *The Empirical Economics of Standards*, DTI Economics Paper No. 12. London: Department of Trade and Industry: <http://www.berr.gov.uk/files/file9655.pdf>
- Thorell, P. and Whittington, G. (1994). 'The harmonization of accounting within the EU'. *European Accounting Review*, 3(2): 215–239.
- Tweedie, D. and Whittington, G. (1990). 'Financial reporting: current problems and their implications for systemic reform'. *Accounting and Business Research*, Winter: 87–102.
- Veall, M. R. (1995). 'On product standardization as competition policy'. *Canadian Journal of Economics*, 18(2): 416–425.
- Whittington, G. (1989). 'Accounting standard setting in the UK after 20 years: a critique of the Dearing and Solomons Reports'. *Accounting and Business Research*, 19: 195–205.
- Whittington, G. (1993). 'Corporate governance and the regulation of financial reporting'. *Accounting and Business Research*, 23: 311–319.
- Whittington, G. (1994). 'Current cost accounting: its role in regulated utilities'. *Fiscal Studies*, 15: 88–101.
- Whittington, G. (2008). 'Harmonisation or discord? The critical role of the IASB conceptual framework review'. *Journal of Accounting and Public Policy*, 27: 495–502.
- Williamson, O.E. (1998). 'Transaction cost economics: how it works; where it is headed'. *De Economist*, 146: 23–58.
- Wilson, J.S. and Otsuki, T. (2003). 'Food safety and trade: winners and losers in a non-harmonised world'. *Journal of Economic Integration*, 18(2): 266–287.
- Zeff, S. (1998). 'The coming confrontation on international accounting standards'. *Irish Accounting Review*, 5: 89–117.
- Zeff, S. (2002). "'Political" lobbying on proposed standards: a challenge to the IASB'. *Accounting Horizons*, 16: 43–54.