



FINANCIAL
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Long-term investment and accounting: overcoming short-term bias

Public policy paper

INFORMATION FOR BETTER MARKETS INITIATIVE



1. The problem

Investment is an essential ingredient of better economic performance – both for individual firms and for the economy as a whole. For long-term performance what matters is a mixture of short-, medium- and long-term investment. In the private sector this will be financed by short-, medium- and long-term investors, using financial instruments of different durations.

The challenge is to maintain an appropriate balance between the short term, the long term and everything in-between. However, both managers and investors are often accused of being biased towards the short term. And it is sometimes claimed that accounting as we know it has inherent biases that encourage short-termism in managers and investors, discouraging long-term investment.

There are five counts on the charge sheet:

- It is claimed that the use of fair-value-type measurements encourages short-termism. We look at this question in section 2.
- Firms report on their performance over short periods, with the result, it is said, that there is no accountability for managers' long-term performance and they are therefore encouraged to focus on the short term (section 3).
- It is also claimed that frequent reporting – quarterly, for example – makes managers more short-termist in their decisions (section 4).
- Firms provide information about their performance and financial position as quickly as possible so as to meet investors' demand for timely information. This requires preparers to make arguably premature accounting judgements, which – under current accounting conventions – tend to be biased towards writing off spending on investments whose outcome is uncertain. This, it is claimed, creates a bias against investment in intangibles (section 5).
- Finally, firms' activities have consequences for society and the environment that are not reflected in their accounts and are therefore, it is argued, ignored by firms and their investors. Some of these consequences are long term (section 6).

In section 7 we draw some conclusions and identify questions for further work.

Types of investment

There are two distinct types of long-term investment and in this report we are concerned with both:

- investment by firms in assets that have potentially long lives – eg, brands, technologies, land and buildings, mines, oil wells, pharmaceuticals; and
- investments by shareholders or lenders ('investors') that are held for the long term.

There is not necessarily any connection between the two types of long-term investment. Firms that invest in short-life assets may be financed by long-term investors and firms that invest in long-life assets may be financed by short-term investors. Of course, short-term finance for long-life assets can be a recipe for disaster. The problem is usually overcome by ensuring that long-life assets are financed by long-term financial instruments, either equity or long-term debt. But these may be held by short-term investors.

Accounting information in the form of financial reporting is only one of the ways that firms provide information to investors, and investors also have access to other sources of information. Non-financial reporting, disclosures outside the regular reporting cycle, and information from third parties are all relevant to investors' decisions. So, even if financial reporting does impart a short-term bias to investment, this may be countered by other forms of information. For example, firms that invest heavily in intangibles that do not appear as assets in their accounts can (and should) provide additional information on these assets so that investors are fully informed.

Financial reporting also plays a disciplinary role for other sources of information, as investors can check that the expectations raised by other disclosures are subsequently confirmed by information in the audited accounts.

Defining the 'long term'

Investments nowadays are often bought and sold in a fraction of a second. In this context, investors who hold on for a year or two may be regarded as long-termist. At the other extreme, a human life in a developed economy typically lasts for 80 years or more, and individuals may make investment decisions at an early age that can still affect their lives 50 or 60 years later.

In this report, we take the long term to be 20 years or more. This is somewhat arbitrary, but few business decisions look 50 years ahead, a year is definitely too short to be the long term, and something in-between looks more reasonable.

We take the short term to be periods of a year or less. On this basis, the boundaries between the short and long terms are ill-defined, but this does not affect our argument.

2. Fair value accounting

It is sometimes claimed that fair value or other current value measurements can make the reported performance of long-term investments unnecessarily volatile. This is partly because current value measurements of such items reflect not only changing expectations of future cash flows, but also changes in the discount rate applied to the cash flows. It is argued that this unnecessary volatility can deter investors from selecting such investments.

It is also claimed that fair value measurements can encourage short-termist attitudes by rewarding performance that in the short term appears successful, but which in the long term may not be (or vice versa). In particular, it is argued that short-term falls in asset values can cause unnecessary problems in regulated firms' balance sheets, giving an unwarranted appearance of insolvency or capital-adequacy difficulties. These arguments relate particularly to banks and to the potential causes of the Global Financial Crisis of 2008.

In spite of these claims, we are not aware of any evidence that the use of fair value measurements has led to short-termism in investor behaviour, and we consider it unlikely that it has done so. In general, more volatile financial performance implies greater risk for investors, which should make them more reluctant to invest. But the evidence suggests that investors understand that fair value numbers are inherently more volatile than historical cost numbers; they do not assume that greater volatility from this cause indicates greater risk.

Ironically, in view of the concerns that have been expressed about fair value, some of the most important ways that financial reporting has improved in recent decades have involved greater use of fair value or similar estimates of current value in reporting on long-term items.

For example, accounts now contain better information than they used to on the implications of firms' long-term commitments for pensions and healthcare benefits for current and former employees. These costs, which are uncertain amounts to be met possibly several decades in the future, can only be measured sensibly using some form of present value calculation – if not exactly fair value, then something like it.

Accounts also contain better information now on the long-term environmental costs of firms' operations. For example, where decommissioning costs or environmental restitution costs will eventually be incurred by the firm, these are recognised in its accounts. Again, this requires a calculation of the present value of the future payments involved – something like fair value.

In these and other ways, fair-value-type measurements of long-term items are making financial reporting more transparent, and helping businesses and their investors face up to the long-term consequences of their decisions. Although these changes can be presented as a shift towards fair value, it is probably better to see them as a move away from cash-based to accrual-based accounting. This requires matching income with the costs incurred in generating it, even though the relevant expenditure may be some way off in the future. Such measurements may also perhaps be seen as countering managers' potential 'hyperbolic discounting' – the tendency to discount future consequences excessively.

A possible disadvantage of fair-value type measurements of long-term items is that they involve a significantly higher degree of estimation; there is a relevance v reliability trade-off in moving from cash-based to accrual-based accounting.

To the extent that fair-value-type measurements of long-term items are considered to give a misleading picture of performance (but, for some items, are perhaps more useful nonetheless than alternative measures), changes in them can be segregated to the statement of other comprehensive income (OCI). This happens already with some gains and losses, but currently not on the basis of a consistent rationale.

3. Long-term data series

If we wish to encourage better long-term performance, then perhaps it would make sense to have financial reporting that covers long periods. Otherwise it could be argued that there is no accountability for long-term performance, reducing managers' incentives to pay due attention to the long term.

It would be possible for firms to provide long-term series of data as supplementary information. They might, for example, provide 20 years of data for key financial reporting numbers. After all, government statisticians manage to produce long runs of data on consistent bases and adjusted for inflation. These go back decades and are considered to be essential in judging economic performance.

In practice, investors already look at longer runs of data on firms. Investment analysts often maintain databases going back a number of years. The cyclically adjusted price/earnings (CAPE) ratio goes back 10 years, and other commercial information providers sell data going back for longer periods. We are aware of at least one provider that makes adjustments to 20-year data runs for eg, the effects of inflation and changes in lease capitalisation policies. Data series are available for even longer periods than this but do not appear to include such adjustments.

Investors are interested in these longer data runs for several reasons:

- a single year's results can be misleading;
- looking at a number of years gives the user an idea of trends in the firm's performance; and
- a longer period makes sure that the picture of the firm's performance includes how it performs at different points in the business cycle.

It therefore appears that investors, either by constructing their own data series or by buying information from commercial providers, already have the long-term performance data that they need. We are not aware of any calls from investors for firms to provide significantly longer time series of data, but it could be done if there were a demand for it and if the benefits could be shown to exceed the costs. Longer-term information is of interest to people other than investors eg, researchers, and perhaps there could be said to be a public interest in it, but the benefits of providing it would still have to be compared with the costs. It would probably not be practicable for firms to provide such information on a fully comparable basis for more than a few years, partly because of changes in accounting policies, but also because firms' structures and business models are liable to change significantly over time. Changes in the value of money are a problem as well, of course, but the numbers could be adjusted to allow for this.

The problem of motivating managers to focus on long-term performance is also addressed to some extent in practice by long-term incentive plans (LTIPs) and by deferred bonus schemes. These are not 'long-term' in the sense of this report, as they would generally last no longer than three to five years. But senior executives are rarely in place for 20 years, and there is a limit to how long employees would be willing to wait before they are paid, so shorter periods make sense in this context.

4. Frequency of reporting

It is often said that quarterly reporting can encourage short-termism in corporate managers and so impede long-term investment; there is some evidence to support this view.

Greater reporting frequency can increase transparency, leading to beneficial capital market outcomes, such as a lower cost of capital and greater market liquidity in share trading, facilitating capital raising for long-term investments. There is some research evidence that supports this view and some that casts doubt on it; we summarise this evidence in the appendix. But when the frequency of reporting is increased there is a trade-off between increases in transparency (which should make it easier to attract finance for investments of any duration) and managers' wishes to meet market expectations (which may militate against incurring short-term costs that promise longer-term payoffs). This can also be seen as a trade-off between transparency and managerial autonomy, with managers believing that, left to themselves, they can be trusted to do the right thing in the firm's long-term interests, and investors wishing to monitor the managers.

There is a limit to how often it is sensible to report information externally, and reporting too frequently may well impede long-term investment. But the ideal frequency of financial reporting is likely to vary among jurisdictions and among firms. In the same way, firms' statements on their future viability under *The UK Corporate Governance Code (2014)* cover different periods reflecting, among other things, 'the nature of the business and its stage of development'.

The Kay Review of UK Equity Markets and Long-Term Decision Making (2012) commented that, for businesses with long-term investment horizons, 'interim assessments of evolving performance are necessary, but can only be qualitative and subjective. The meaningful measurement of annual profit requires fine and subjective judgement, and quarterly earnings will be dominated by random fluctuations – or worse, will be managed to avoid them.' The review accordingly recommended that quarterly reporting requirements should be removed, which has subsequently been done at the EU level.

The concern about the frequency of external reporting contrasts with what happens inside firms. We are unaware of any firm that has decided to stop requiring monthly (or quarterly) management accounts because they focus managers' attention too much on short-term performance. It would be interesting to consider why there is this difference between the presumed effects of internal and external reporting frequency, and how far the presumption is justified.

5. Timeliness v reliability

The trade-off

Investors want progress reports on how the firms in which they invest are performing, and they want this information on a timely basis so that they can take action where appropriate.

Many measurements in accounts are affected by expectations about the future. These measurements could be made more reliable just by waiting. For example, when managers prepare accounts, often they do not know whether or to what extent the amount that the firm has spent on a particular asset will be recovered from the future income that it will generate. If they waited long enough, they would (ignoring allocation problems) know the answer. How long they would have to wait depends on the asset: perhaps a few months for trade debts, some years for plant and machinery, and up to 25 years for a mortgage. On the liability side, the same problem arises with provisions for future uncertain amounts. If they wait the necessary months, years or decades, managers will know how the liability turns out.

In practice, of course, investors – and indeed other interested parties such as tax authorities – do not want to wait to see how things will turn out at some point in the possibly distant future. They want timely information, even though this requires the preparers of accounts to make a series of arguably premature judgements.

An important convention in accounting is prudence. This is reflected in the requirements of standard-setters and in preparers' judgements. It affects, among other things, which assets are recognised in accounts and how they are measured. One of its effects is that expenditure on intangible assets created by a business is usually not recognised as an asset in the accounts but is written off as it is incurred because at the time of the expenditure its future recovery is regarded as too uncertain. This can lead to a significant discrepancy between the assets that a firm holds and the assets that it shows in its accounts. As investment in intangibles becomes relatively more important, this discrepancy tends to grow.

It has been argued that the absence from accounts of many intangibles acts as a deterrent to firms to invest in them. Accounting researchers have argued on different sides of this question and we refer to the evidence in the appendix. But on balance we do not believe that the accounting treatment of intangibles has led to under-investment in them to the detriment of long-term performance. Investors understand – and are happy with – how intangibles are accounted for and they use other sources of information when investing in intangibles-based firms. Among other things, prudent accounting on such matters counters an inherent tendency to excessive optimism among preparers – an aspect of the well-attested phenomenon of 'managerial optimism' ie, over-optimism.

However, there is a trade-off between timely reporting and reliable information, and this affects how a business's performance is reported. We look below at a possible way in which this conflict could be mitigated by taking a longer-term approach to financial reporting.

Updating past estimates

In financial reporting, it is accepted that prior years' results should be adjusted for errors but not for changes in accounting estimates. Is this the most useful approach?

It would be possible for companies to produce revised versions of their accounts for earlier years, adjusting them with the benefit of hindsight so that they give a more accurate picture of performance than would have been available on the basis of information available at the time. And some people have indeed suggested that this should be done.

Although we note an exception below, revisions of prior years' estimates would usually only be practicable over a relatively short period, perhaps going back over five years at the most. They would not, therefore, be a method of reporting on long-term performance, although they would give a more accurate picture year by year of medium-term performance. An exception is insurance, and US property and casualty insurers are required to provide information updating previous years' experience in the light of subsequent developments for a period of 10 years.

This is possible because of the nature of the records kept for insurance of this sort, reflecting the duration of the relevant liabilities.

Revising previous years' results using the benefit of hindsight to improve past estimates of the future would no doubt produce interesting information. And the further we are from a past period, the more accurately we can adjust its results. Would the benefits exceed the costs?

When firms report, their managers are reporting on their own performance. Their reports are on the face of it unlikely to be independent and objective in the absence of appropriate safeguards. It is difficult to know how effective existing safeguards would be if preparers were given the obligation – or the opportunity – to correct past estimates with the benefit of hindsight as well as to report on current performance. The effort and attention to secure objectivity would be likely to remain focused on the current period's reporting on the basis that this is what matters most. The adjustment of earlier years' results would be likely to get less attention and might therefore be less reliable. It would also open up opportunities for incoming managers to rewrite the story of their predecessors' performance; this could be either highly informative or open to abuse. The problems of changing business structures and changing prices, which we mentioned earlier, would also be relevant.

There are therefore changes that could be made to financial reporting to adjust medium-term series of data with the benefit of hindsight. It is unclear whether such changes would be worthwhile, and again we are not aware of any calls for this sort of information from investors, but it could be done.

6. Externalities

The problem of externalities is at the heart of many concerns about the contrast between the alleged short-termism of financial reporting and the long-term effects of business activities. Businesses can be highly profitable in the short term but have damaging long-term effects by exhausting or polluting natural resources. Or they may be (unintentionally) unprofitable but produce significant long-term benefits because of pioneering work that others subsequently exploit more successfully. It may therefore be argued that financial reporting fails to align measures of business performance with society's long-term interests.

The key issues here are economic as well as accounting ones. Business activity creates some costs and benefits that are not reflected in the costs incurred or benefits received by those who create them. These are referred to as 'externalities' and may be either short or long term. In the short term, a poisonous discharge into a river could kill the fish in it, but the fish stocks may recover if proper remedial steps are taken. In the long run, a useful drug confers benefits even after the patent expires and the company that invented it ceases to make any gain from it. Neither the short-term nor the long-term externality is reflected in the accounts of those responsible for them, unless the legal framework imposes relevant costs or rewards. For example, regulatory authorities could impose fines on the polluter or the legal system could give enforceable rights to the fishermen who use the river.

It is a basic principle of economics that we attach lower values to future than to present costs and benefits. We also attach lower values (and frequently no value) to costs and benefits that affect others rather than ourselves. For both these reasons, the present generation attaches lower values to the costs and benefits that it passes on to later generations than will those who receive them. This reflects externalities between generations. For example, a bridge can last for hundreds of years but in deciding whether it is worthwhile to build it, the effect of discounting future benefits is likely to mean that the decision only takes into account, say, the first 20 years. Conversely, if it suits us to deplete the world's natural resources now, although we no doubt feel some concern about the costs this imposes on future generations, we are unlikely to attach as much weight to their needs as we do to our own.

At the same time, the further ahead we look the more difficult it is to forecast the effects of our actions. In 50 years' time, the bridge that looks so useful now may be in the wrong place and the resources whose prospective disappearance concerns us may have been replaced by alternatives.

These are not problems that financial reporting as we know it can solve as it is restricted to the financial costs and benefits experienced by the reporting firm. They are, though, problems that should arguably be addressed in firms' non-financial reporting, and reporting principles have been developed that are designed to deal with them. The International Integrated Reporting Framework, for example, provides a way for firms to report on, among other things, their effects on natural capital. In this way, non-financial reporting can at least in part bridge the gap between financial reporting and recognition of the full short- and long-term costs and benefits of a firm's activities.

But to the extent that such reporting makes assumptions about the future, it is – like financial reporting – inevitably subjective, and the further ahead we look, the more likely it is that our estimates of costs and benefits will be wrong. And unless the costs and benefits reported are ultimately borne by firms and their investors, there is a risk that their decisions will in any case be unaffected by such information.

7. Conclusions and questions for further work

In the long run what matters to a society is long-term growth and development, which will be the product of short-, medium- and long-term investments, financed by short-, medium- and long-term investors, using financial instruments of different durations.

What matters to firms is the ability to raise money from investors at the lowest possible cost so that they can invest it profitably in assets of varying duration. What matters to investors is the ability to invest so as to maximise realised returns over whatever timescale they prefer.

Financial reporting should therefore facilitate investment of all durations. It does so by providing information that, among other things:

- allows investors to understand a firm's financial performance and financial position; and
- establishes trust between managers and investors.

The best way in which financial reporting can assist long-term investment – or indeed investment of any duration – is by providing relevant and reliable information, so that investors can make better decisions and can feel greater trust in the firms providing the information. In this way, capital for investment is more likely to be provided and at lower cost, and allocated to the most productive investments, regardless of their duration. The nature of the relevant information does not seem to differ with the duration of the investment ie, whether it is long or short term.

Although investors are interested in long-term performance looking forward, firms do not report on their long-term performance looking back. It would be possible for them to do so in supplementary disclosures, but there would be practical challenges. Also, investors appear to be content with long-term data series that they construct themselves or buy from third parties.

It would also be possible for firms to adjust past estimates in financial statements with the benefit of hindsight. This would probably not be feasible for most firms for more than a few years and it would involve additional costs. And again there appears to be no demand from investors for this sort of information.

We are not aware of evidence that current financial reporting practices impede long-term investment, except in relation to the frequency of reporting, where there is a trade-off between the benefits of transparency and the costs of ensuring, at frequent intervals, that investors' expectations of performance are met.

Nonetheless, the evidence on these matters is often sketchy. There is a substantial body of research linking financial reporting to investment in various ways, and in general – as one would expect – this finds a positive relationship between the two. But this research does not address the possible relationship between financial reporting information and the duration of corporate assets ie, whether investment is short term or long term.

There are a number of questions on which more research would be welcome.

- What sort of investors hold on to investments in firms for the long term? Do their information needs differ from those of other investors?
- Is there, or should there be, a demand for firms in industries that invest in long-life assets to report on their long-term performance? Would the benefits exceed the costs?
- Is there, or should there be, a demand for certain types of firm – eg, those that invest heavily in intangibles – to restate with the benefit of hindsight financial reporting information for, say, the past five years? Would the benefits exceed the costs?
- Are the capital market effects of financial reporting information affected by asset duration?
- Is the frequency of internal reporting an obstacle to long-term performance?

In answering these questions it could be particularly interesting to look at evidence from countries such as Germany and Japan that have a reputation for taking a long-term view of investment, and at whether their firms have in fact out-performed in the long term.

We would welcome comments on this report and its conclusions; please send them to bettermarkets@icaew.com.

Appendix: Research evidence

Introduction

The structure of this appendix mostly follows that of the main report. We look at the evidence on whether:

- fair value accounting contributes to short-termism;
- frequent reporting encourages short-termism ; and
- the trade-off between reliability and timeliness causes short-termism.

In section 7 of the report we state that financial reporting can assist long-term investment by providing relevant and reliable information. We look at support for this statement.

We also report in this appendix proposals for financial reporting reform, put forward by the European Financial Reporting Advisory Group (EFRAG), intended to reflect 'long-term investment' business models.

Although, as we note in the main report, there is a substantial body of research relating financial reporting to investment in various ways, there appears to be no research relating the effects of financial reporting to the **duration** of corporate investments (asset life). This may be because relevant data are not readily available or because researchers consider the question of no interest eg, because when they do look at it, they do not find that asset life makes a difference, or because it is impossible to disentangle asset life from other questions eg, the nature of firms' business models. However, as promoting long-term investment is a widely held public policy objective, there does seem to be a gap in the research.

In the main report we define the long term as 20 years or more. This is much longer than what many in business would regard as long term. **Barclays (2015)**, in its survey of opinions in UK privately owned companies, finds that, when asked about what they considered long term to be, half of businesses said three years out, while a further 30% said five years. However, while the survey does not give the numbers for this, it appears that most of the businesses expect still to be existence in 20 years' time.¹

Fair value accounting

The report notes two arguments that fair value causes short-termism in investors. The first relates to volatility. Where accounting policies are stable, greater volatility in reported results should indicate increased risk in the underlying investment. Increased risk should make investors more reluctant to invest, which may affect the level of long-term investment. However, where the increased volatility in the accounting numbers reflects a change in accounting policies eg, greater use of fair values, investors should ideally be able to 'see through' it, as it is not necessarily an indication of increased volatility in the underlying investments.²

The evidence on fair value and volatility – on pension accounting and asset allocation, and on investment trust share prices and to a limited extent on banks – is considered below.

The second argument relates to the alleged role of fair value accounting in encouraging investments that appear to be successful in the short term but are unsuccessful in the long run (or vice versa). This claim is often made in connection with the Global Financial Crisis, and we briefly review the evidence on this. A related argument is that at times of falling asset values, unduly low fair values can cause unnecessary problems in regulated firms' balance sheets, giving an unwarranted appearance of insolvency or capital-adequacy difficulties. As this would be an instance of something appearing unsuccessful in the short term that would be successful in the long term, we also look at the evidence on this. It has been claimed that Enron's history demonstrates how fair value accounting can lead to poor investment decisions, and we explore this claim.

¹ The published survey only gives the numbers for those that do **not** expect to be in business in 20 years' time.

² If increasing use of fair value provides increased transparency of risk, then it may well lead investors to make more accurate assessments at the firm level – increasing their assessment of risk in some cases and reducing it in others.

The overall conclusion on these issues is that the case against fair value is not proven. This does not exclude the possibility that, at some point, convincing evidence will be found that supports the theory that fair value promotes short-termism, but it does not appear to have been found so far.

The alternative to fair value is usually considered to be historical cost. But it has sometimes been suggested that fair values would be better measured as an average of prices over a period rather than at a specific date eg, **Seeberg et al (2008)**. This would have the effect of reducing volatility, which is the rationale behind the suggestion, and would also arguably tend to reduce any misallocation problem by smoothing out extreme values. This suggestion continues to obtain some support.

Pension accounting and asset allocation

The European Commission's 2013 green paper *Long-Term Financing of the European Economy* states that 'fair value accounting principles ... may ... be detrimental to stability and long-term financing horizon ... There is merit in examining further whether these standards are fit for purpose when it comes to long-term investment'. The two examples mentioned in the green paper in support of this argument are:

'[S]ome research highlights a reduction by institutional investors in equity allocations in investment portfolios, since equity is considered more volatile and risky than bonds. Other research argues that market-consistent valuation may encourage long-term investors to increase their risk exposure, if the volatility is recognised outside their profit and loss accounts.'

On the point about investment portfolios, the implication is that the reduction in equity allocations is attributable to the introduction of fair value accounting. The only empirical evidence on this point that we are aware of relates to investments by defined benefit (DB) pension schemes in the UK and the US. This does indeed suggest that there is a correlation between the adoption of current value measurements and a shift of a few percentage points out of equities and into bonds. But the research literature also identifies other possible causes of these developments so far as the UK is concerned, including the following explanations.

- The closure of DB schemes to new entrants at the period covered by the research meant that their remaining members were on average moving closer to retirement. It is common practice for pension funds to shift their investment balance towards bonds as their members approach retirement and their pensions become payable.
- The tax position of investment in equities became less advantageous during the period in question.
- Thinking about the best way to finance pensions was in any case shifting at this time, and the wisdom of relying heavily on equities rather than bonds was increasingly questioned for reasons that had nothing to do with accounting. The key point here is that, as the green paper notes, investment in equities 'is considered more volatile and risky than bonds'. Those who argued in favour of reducing DB pension schemes' investment in equities questioned the suitability of using volatile and risky assets to finance stable and predictable long-term obligations.

Mashruwala (2008) finds a reduction in UK schemes' equity allocation and **Amir et al (2010)** find reductions in equity allocations for both UK and US schemes. **Kiosse and Peasnell (2009)** discuss the evidence, based on slightly earlier versions of these two papers.

A more fundamental point is that it is not clear why it should be assumed that a shift by DB pension schemes (or any other group of investors) away from equities and towards bonds is detrimental to the financing of long-term projects. Provided the bonds are long-term bonds, which is usually the preference of pension funds, then they seem as fitted as equity to financing long-term projects. No doubt such projects need a mixture of equity and debt financing. While an average shift of a few percentage points between equity and bond asset allocations by some investors may make the equity element slightly more expensive, it should make the bond element correspondingly cheaper. What is needed is research on whether fair value accounting causes a shift from equity and long-term bond issues to short-term bond issues, but we are not aware of any research on this question.

On risk exposure, the argument mentioned in the green paper appears to be derived from the OECD working paper *The Effect of Solvency Regulations and Accounting Standards on Long-Term Investing* (2012). This referred to what might happen following changes made in the 2011 version of IAS 19, *Employee Benefits*, which while introducing greater volatility in pension measurements, removed much of the income volatility from profit or loss to OCI. These provisions came into effect in 2013 and we are not aware of any empirical research yet as to their effects on asset allocation.

Fair value and excessive volatility

Goncharov (2015) looks at the effect of fair value accounting by UK investment trusts on the volatility of the trusts' share (or 'stock') prices. He finds that 'stock price volatility is too high when firms use a mixed measurement model and carry assets at fair value and related liabilities at historical cost'. He also finds, however, that:

'Stock price volatility is low when investment trust shares are traded by sophisticated investors and are followed by a greater number of analysts. Thus, a better understanding of fair value reporting issues can return stock price volatility to the normal level.'

We are not aware of any similar findings in relation to other entities that use fair value reporting. Goncharov notes that an earlier study by the European Central Bank – **Enria et al (2004)**, which for this issue looks at evidence from EU banks – 'does not support the prediction that stock price volatility increases upon introduction of fair value accounting'. UK investment trusts may be an extreme case as:

- virtually all their assets are fair valued, whereas in other entities (eg, banks) usually only some of the assets are at fair value; and
- retail investors typically hold a higher proportion of the shares of investment trusts, which are aimed at the retail investor market, than of other listed entities. So their investors may be relatively unsophisticated.

It should be noted that Goncharov argues that it is the mixed measurement model – not fair value as such or historical cost as such but the combination of the two – that causes the excess volatility.

In the context of the current report, the significance of excess volatility is that it may mean that investors perceive an investment as higher risk and therefore are less likely to support it or would only be willing to do so at a higher price (ie, demanding a higher risk premium). While it is unclear how far the findings of Goncharov (2015) are applicable to other forms of investment, his findings concerning sophisticated/unsophisticated investors are of wider interest as one would expect more sophisticated investors to recognise that increased volatility of accounting numbers on adoption of fair value is not necessarily an indication of increased risk.

Also, although investment trusts invest predominantly in equity shares, which are a form of long-term finance for the firms that issue them, it is not clear whether we should expect excess volatility in investment trusts' shares to translate into excess volatility of the shares of the companies in which they invest, which is the question of greater significance for the purposes of this report.

Short-termism in banking and the Global Financial Crisis

The argument that connects fair value with short-termism in banking makes the point that fair values can be poor indicators of long-term value. It is claimed that at some points in the business cycle fair values can be too low, while at others they can be too high. As a consequence it is claimed that:

- at the high points of the cycle financial results look better than they should do, encouraging decisions that are not optimal in the long term; while
- at the low points of the cycle financial results look worse than they should do, again encouraging decisions that are not optimal in the long term. For regulated firms, this would include situations where short-term falls in asset values cause arguably unwarranted concerns about solvency and capital-adequacy ratios.

These arguments do not imply that historical cost is necessarily a better indicator of long-term value. The argument is rather that short-term changes in fair value are often 'noise', which it would be better to ignore.

The possible role of fair value accounting in the Global Financial Crisis has been examined in a number of papers and reports eg: **US Securities and Exchange Commission (SEC) (2008)**, **Barth and Landsman (2010)**, **Laux and Leuz (2010)**, **Shaffer (2010)**, **Bhat et al (2011)**, **Badertscher et al (2012)**, **Laux (2012)**, **Amel-Zadeh and Meeks (2013)**, **ICAEW (2015)**, chapter 11, and **European Commission (2015)**, appendix 6.

In general, the evidence does not suggest that fair value accounting was the immediate cause of the crisis or that it exacerbated the crisis once it had begun. SEC (2008), for example, concludes that:

'Bank failures in the US appeared to be the result of growing probable credit losses, concerns about asset quality, and, in certain cases, eroding lender and

investor confidence. For the failed banks that did recognize sizable fair value losses, it does not appear that the reporting of these losses was the reason the bank failed.'

Some of the major US banking failures were of investment banks, which were outside the mandated scope of the SEC study. The SEC extended its conclusions so as to cover these firms:

'Rather than a crisis precipitated by fair value accounting, the crisis was a "run on the bank" at certain institutions, manifesting itself in counterparties reducing or eliminating the various credit and other risk exposures they had to each firm.'

Bhat et al (2011) go against the general trend, finding evidence that fair value accounting requirements for mortgage-backed securities drove asset sales. On the other hand, Laux (2012), which takes into account Bhat et al (2011), concludes that 'there is still no evidence that fair value accounting caused widespread fire sales of assets or contagion'.

However, as ICAEW (2015) points out, the research to date does not examine the role of fair value before the crisis – the period when critics allege that unduly high fair values contributed to short-termist attitudes in banking. Also, Bhat et al (2011) and Amel-Zadeh and Meeks (2013) find evidence that the stock market reacted positively to news of relaxations in fair value accounting requirements, which suggests that the market viewed these requirements as increasing the risk of insolvency.

Fair value and misinvestment

Benston (2006) argues that the misuse of fair value accounting by Enron in its assessment of the success of investment projects and in compensating managers led the company 'to over-invest resources in often costly, poorly devised, and poorly implemented projects'. However, he points out that this was 'contrary to the way fair-value accounting should be used' and that, in other cases, 'over-optimistic, opportunistic, and dishonest managers have misused historical-cost-based accounting to overstate revenue and assets and understate liabilities and expenses'. It is not clear, therefore, how far fair value accounting, rather than incompetent and dishonest managers, should be regarded as the cause of the misinvestment.

Frequency of reporting

Managers try to meet expectations and may incur costs (dismissal, lower compensation, impaired career prospects) if they fail to meet them. They therefore face 'a trade-off between the short-term need to "deliver earnings" and the long-term objective of making value-maximising investment decisions'. As a result, they sometimes choose to 'sacrifice long-term value to meet earnings targets' (**Graham et al (2005)**).

As **Graham et al (2005)** is based on US evidence, it is set in a context of meeting quarterly earnings targets, but the same problem would exist to some degree if US companies reported less frequently – only half-yearly or annually or even less than annually. **Arya et al (1998)** draw attention to the view attributed to German managers (not in the context of reporting frequency) that the use of hidden reserves to manipulate reported earnings allowed them to 'focus on the long-run rather than the short-run performance of their companies'. The conflict may therefore be seen as one between transparency and long-termism and, viewed in this light, the problem with increased reporting frequency would be that it increases transparency.

We may also note that the comments quoted above suggest a view among managers that they are struggling to do their best in the long-term interests of their firms, while equity investors place obstacles in their way. It is not obvious that this view is correct, and equity investors may see things differently.

Much of the research on the effects of reporting frequency focuses on situations where there is a change in reporting frequency. Findings vary on the costs and benefits of increasing frequency. The main potential benefit is a reduction in information asymmetries (although the evidence is not unanimous on this), which may lead to a lower cost of capital and/or increased market liquidity. Relevant costs include higher preparation costs and, potentially, increased real earnings management, which in theory should damage a firm's long-term prospects, although the evidence on this too is mixed.

The research mostly looks at the effects of quarterly reporting compared with six-monthly reporting. It does not show whether, if we compared six-monthly reporting with annual reporting, it would still be found that managers take decisions that improve short-term performance at the expense of the long term.

The research does not relate the effects of quarterly reporting to asset life. It does not, for example, tell us whether investments with a long life are more or less likely to be cut than investments with a shorter life.

Most of the research uses US evidence. It would be useful to have more research on experience in other countries. Japanese companies, for example, have a reputation for taking a long-term view and it would be interesting to know how far Japan's adoption of quarterly reporting in 2008 affected this.

Although research on the trade-off between meeting expectations and maximising long-term value focuses on external reporting, managers also have to meet expectations when they report internally, and internal reporting is usually more frequent than external reporting. There is a trade-off here as well and it would be interesting to know more about its effects.³

Effects on cost of capital, market liquidity and information asymmetry

Botosan and Plumlee (2002) look at the effects of the level of disclosure on the cost of equity capital. Looking at data on US companies for the period 1985–1996, they find that for 'annual published and other required information' a higher level of disclosure is associated with a lower cost of equity capital. But for 'quarterly and other published information [that is] not required', which includes more timely information, they find that a higher level of disclosure is associated with a higher cost of equity capital. They comment that their findings 'provide some support for managers' claims that greater disclosure of more timely information increases their cost of equity capital, perhaps through greater stock return volatility'.

In discussing their results for more timely disclosures, Botosan and Plumlee (2002) refer to **Bushee and Noe (2000)**. The latter, using the same data source as Botosan and Plumlee (2002) for disclosure levels, find that rankings of more timely disclosures are significantly correlated with levels of transient, short-term ownership. The authors suggest that 'transient [shareholders] prefer firms whose stocks have liquid markets that allow short-term trading strategies to be executed without profits being eroded by transaction costs.' However, transient owners 'exacerbate a firm's stock return volatility with their short investment horizons and aggressive trading strategies'.

Butler et al (2007) look at the effects of voluntary and mandatory quarterly reporting on 'timeliness' – as they define it, the speed with which financial reporting information is reflected in stock market prices. On the face of it, increased timeliness in this sense should indicate increased transparency (reduced information asymmetry). The sample is US firms over the period 1950–1973. Quarterly reporting became mandatory for US listed firms from 1970 but most were already doing it voluntarily by that time. The authors find 'little evidence of differences in timeliness between firms reporting quarterly and those reporting semiannually', but that 'firms that voluntarily increased reporting frequency from semiannual to quarterly experienced increased timeliness, while firms whose increase was mandated by the SEC did not'.

Fu et al (2012) look at the effects of voluntary and mandatory quarterly reporting by US firms over the period 1951–1973. They find that firms with higher reporting frequency have lower information asymmetry and a lower cost of capital. This applies whether the adoption of quarterly reporting is voluntary or mandatory. Information asymmetry is measured using two measures of market liquidity: bid-ask spreads and the price impact of trades.⁴

Van Buskirk (2012) looks at the effects of voluntary monthly reporting by US retailers for the period 1993–2001. He finds that 'the practice of regularly providing monthly revenue disclosures is not associated with reduced information asymmetry' measured by two proxies for liquidity: bid-ask spreads and 'depth' – the total value of shares offered at the current quoted bid and ask prices. He also finds that 'information asymmetry is increasing in the days prior to the interim announcements, which is a pattern that substantiates media reports of institutional investors going to great lengths to obtain information prior to the release date'. However, 'by providing more frequent disclosures, [monthly reporters] improve the average level of information among investors'.

Kajüter et al (2015) look at the effects of the introduction in 2003 of mandatory quarterly reporting for Singapore-listed firms. The requirement was applicable to firms with a market capitalisation of more than S\$75m, so it is possible to compare firms above the threshold, to which the new requirement applied, with those below the threshold, to which it did not. The

³ One suggestion on how to avoid the trade-off in internal reporting is that reporting on divisional performance should be based on changes in the present value of expected cash flows: **Bromwich (1974)**. This approach, with recognition of all currently unrecognised assets, would also avoid the trade-off in external reporting.

⁴ Increased market liquidity is taken to be evidence, other things equal, of reduced information asymmetry. Reduced bid-ask spreads and reduced price impacts of trades are both indicators of increased liquidity.

authors find no evidence that quarterly reporting reduces information asymmetry as measured by bid-ask spreads and return volatility.⁵

Effects on investment

Kraft et al (2015) look at the effects of increases in reporting frequency by US firms between 1950 and 1970 on the level of their investment expenditure. The sample comprises firms that increased their reporting frequency, voluntarily or mandatorily, to quarterly, three times a year, or half-yearly. They 'find a statistically and economically significant decline in investments after firms increase their reporting frequency. Additional analyses suggest that at least part of the investment decline reflects the effects of enhanced managerial myopia following increases in reporting frequency'. The decline in investment, after including control variables, is 2.3% on one measure and 1.6% on another. The authors comment that their evidence 'does not necessarily imply that frequent reporting is value destroying overall' as there may be compensating benefits eg, to liquidity and the cost of capital.

Ernstberger et al (2015) look at the effects of introducing interim management statements (IMs) – a form of quarterly reporting – in the EU. The 15 EU countries in the sample adopted requirements for IMs at various dates between 2007 and 2009. The authors find that 'firms that issue IMs with quarterly earnings information show greater real activities manipulations⁶ relative to matched control firms'. They also find that 'reporting frequency-induced real activities manipulations are conditional on [high] capital market pressure and on ... [low] IMS disclosure and that they are associated with a long-term decrease in firms' operating performance'.

Kajüter et al (2015) – referred to above – also find that 'the investment level of quarterly reporting firms is significantly lower than the investment level of semi-annual reporting firms'. In addition, they find that the announcement of the threshold for the requirement prompted a rise in the share price of firms that fell below it, implying that 'the market perceives mandatory quarterly reporting as a net burden'.

It is not clear that 'real activities manipulation' is always a bad thing. **Gunny (2010)** looks at earnings management by real activities manipulation for a sample of US firms for 1988–2002. She finds that 'using [real activities manipulation] to just meet earnings benchmarks is positively associated with future performance' and argues that 'the results suggest earnings management via [real activities manipulation] is not opportunistic, but consistent with managers attaining benefits that allow better future performance or signaling'.

It would be interesting to know whether changes in reporting frequency affect investment efficiency (see 'Stock markets and long-term investment' later in this appendix), but we are not aware of any research on this question.

Myopic loss aversion

If frequent reporting does induce investment behaviour that is sub-optimal in the long term, this could be consistent with the theory of 'myopic loss aversion' (see **Benartzi and Thaler (1995)**). This suggests that investors who review their investments frequently, and who are keener to avoid losses than to make profits, make sub-optimal decisions that mean they are worse off in the long run. The authors treat annual reviews as 'frequent' for a long-term investor. In an experiment, **Thaler et al (1997)** find that 'the investors who got the most frequent feedback (and thus the most information) took the least risk and earned the least money'.

In corporate reporting, which these two papers do not discuss, the issue is sometimes one of avoiding reported losses but more often one of meeting expectations: myopic disappointment aversion.

Timeliness v reliability

The conflict between timeliness and reliability has been of particular interest in recent decades in relation to accounting for intangibles. We look briefly at the debate on this and at proposals to address the problem – for intangibles and other items where there is a conflict between the timeliness of information and its reliability.

Accounting for intangibles

Skinner (2008) reviews the argument that non-recognition of intangibles results in under-investment in them, but concludes that 'theory and evidence from corporate finance suggest that capital markets perform well in financing investments in innovative, high-technology

⁵ Other things equal, lower return volatility is taken to indicate reduced information asymmetry.

⁶ 'Real activities manipulations' are eg, cutting back on discretionary expenditures such as advertising or research.

activities' that are high in intangibles. The critics of accounting for intangibles usually focus on their absence from the balance sheet, but Skinner (2008) draws attention to the usefulness of the income statement in assessing the value of intangibles-rich companies, as do **Penman (2007)** and **Penman (2009)**.

The other side of the case on intangibles is set out in Lev (2001), referred to below, and Lev (2008), a rejoinder to Skinner (2008).⁷ There is further discussion of this topic in ICAEW (2009), chapter 3, which includes additional references to relevant research.

At section 5 of the main report we state that intangibles have become more important, an assumption common among critics of current practice in accounting for intangibles. Whether they have in fact become more important is discussed by **Basu and Waymire (2008)**. They defend existing accounting practice on intangibles and argue that intangibles are 'ubiquitous to human economic interaction'.

Revisions to earlier years' accounts

We refer at section 4 of the report to proposals that firms should revise earlier years' accounts with the benefit of hindsight. There have also been proposals, with similar intent, suggesting that firms should report on the accuracy of earlier years' estimates but not necessarily produce revised accounts. Readers of accounts could use the updated information to revise earlier years' numbers if they wished to. The proposals below cover both approaches.

Lev and Zarowin (1999) look at evidence of the decreasing correlation between financial reporting information and stock market prices, which they argue is due to the increasing pace of change in business and to financial reporting's inability to cope with the uncertainties associated with change.⁸ They propose two reforms to deal with this problem. First, they propose that expenditure on intangibles should be capitalised 'when the uncertainty about benefits is considerably resolved'. Second, they propose systematic restatements of earlier years' results in the light of subsequently available information. Where appropriate, the two proposals would be combined. For example, 'at launch, the expensing of R&D for a new drug may seem reasonable, yet when the drug received FDA approval the past expensing is clearly inappropriate. Why then not restate past reports as uncertainty is resolved and one can better measure the past performance of the firm?'

In support of their proposals the authors emphasise the contextual role of financial reporting information. Financial reporting information is not only 'news' but also background information, in the light of which subsequent news from various sources is interpreted. Revising the historical record, it is argued, would enhance this contextual function of financial reporting.

Similar but less extensive proposals are made by **Lundholm (1999)**, who proposes that firms should report, year by year, on the accuracy of the estimates they made in earlier years eg, for bad debts. The author suggests that, 'with a system in place to report on the ex post accuracy of a firm's estimates, regulators might be more willing to allow the booking of more difficult-to-measure assets, such as the value of R&D expenditures'.

Ryan (1997) makes a less detailed proposal, but in the same spirit, for expanded disclosures on the ex post realisation of risk, as already required in the US at that time for loss provisions ('reserves') made by property and casualty insurers.

Lev (2001), which relates specifically to intangibles, proposes that expenditures previously written off should be capitalised for 'intangible investments with attributable benefits that have passed certain prescribed technological feasibility tests'. Lev (2001) is also discussed in **ICAEW (2003)**, section 4.9.

Four publications do not add up to a widespread trend in accounting thought, but it is perhaps significant that they appeared at a time when there was increasing dissatisfaction with the financial reporting model, in particular because of the non-recognition of internally generated intangibles; Lev and Zarowin (1999), Lundholm (1999) and Lev (2001) refer explicitly to this issue. Interest in this issue diminished somewhat with the bursting of the Internet bubble (2000) but has not disappeared.

Skinner (2008) assesses proposals of the type referred to above and sets out arguments against such an approach. These include the following points (leaving aside the question of whether existing accounting practices have any harmful effects on investment in intangibles).

- It would potentially reduce user confidence in the reliability of the numbers.

⁷ The issue of *Accounting and Business Research* that publishes Skinner (2008) and Lev (2008) also includes a reply by Skinner to Lev's rejoinder.

⁸ How such changing correlations should be interpreted is open to question; see eg, **Ely and Waymire (1999)**, **Ryan and Zarowin (2003)** and **Basu and Waymire (2008)**, discussion at p184.

- It could open the door to further earnings management/manipulation.
- The principle underlying the proposed approach could also be applied to liabilities, which might result in higher levels of liability recognition. This might defeat the object of the exercise to the extent that it is intended to bring accounting net assets closer to a company's market capitalisation.

Full fair value accounting

A more radical way of addressing the reliability v timeliness trade-off would be to abandon the reliability constraint and prepare accounts that show all assets at their net present value, recognising all assets in the accounts, including those not currently recognised. This is a form of full fair value accounting. Its effect would be that the expected long-term benefits of current expenditures are recognised instantly in the accounts – or possibly even before the expenditure has been incurred (see **Watts (2006)**, p53).

This approach has not often been advocated but one exception is Boulton et al (2000), who predict that 'in the New Economy, companies will need to continuously measure and report all assets at fair value to all users'. The authors do not in fact foresee reliability problems in providing this sort of information, but predict that as new web-based markets develop for all manner of assets 'emerging technologies will ... allow ... companies to derive information daily or even hourly through information delivered to the corporate desktop'. **Boulton et al (2000)** is discussed in ICAEW (2003), section 4.7.

Stock markets and long-term investment

At section 7 of the report, we state that financial reporting can assist long-term investment by providing relevant and reliable information. Support for this proposition comes from, among others, **Bushman and Smith (2001)**, who argue that 'capital markets with low liquidity risk for individual investors can facilitate high-return, long-term (illiquid) corporate investments ... without requiring individual investors to commit their resources over the long term'. The authors explain that financial reporting's contribution to this is that 'firms' pre-commitment to the timely disclosure of high-quality financial accounting information reduces investors' risk of loss from trading with more informed investors, thereby attracting more funds into the capital markets, lowering investors' liquidity risk'.

The chain of argument is as follows:

- increased transparency (provided by financial reporting) leads to improved liquidity;
- improved liquidity attracts more investors, making it easier to raise long-term capital or to do so at a lower price, because it removes the need for a long-term commitment by the investor; and
- easier access to long-term capital leads to increased long-term investment by firms.

There is empirical evidence to support each of the links in the chain, but not – as far as we are aware – to link financial reporting directly to changes in the level of **long-term** corporate investment. **Levine (1997)**, for example, referred to by Bushman and Smith (2001), reviews the arguments and evidence on the relationship between the development of the financial system, including stock markets, and long-term economic growth, drawing attention to the importance of improvements in liquidity to securing capital for long-term investments, but does not refer to accounting. However, the implication of his paper is that anything that improves liquidity should also improve long-term investment.

Among the evidence linking financial reporting indirectly to increased investment or higher quality investment decisions are a number of papers on 'investment efficiency'. **Biddle et al (2009)**, for example, find that:

'Higher financial reporting quality is associated with lower investment among firms that are cash constrained and unlevered, and with higher investment among firms that are cash constrained and highly levered. In addition firms with high financial reporting quality invest less when aggregate investment is high, and invest more when aggregate investment level is low. These results are consistent with the argument that financial reporting quality facilitates investment for constrained firms, and curbs investment for firms that are more likely to over-invest.'

The theory that underlies this stream of research is that, unless they have access to external funds when they have a good investment case, firms tend to invest when they have the money (ie, are not 'cash constrained') or can access funding (eg, because they are not 'highly levered') regardless of whether they have a good investment case; this state of affairs is inefficient.

Higher quality financial reporting should facilitate firms' access to funding when they have a good investment case, leading to greater investment efficiency.

While this stream of research provides evidence that financial reporting quality can lead to greater investment efficiency, it does not distinguish among corporate investments of different durations.

Shroff (2015) takes a different approach, and links increases in financial reporting **credibility** (not quality) to significant increases both in firms' capital expenditure (up 10.9%) and in their 'long-term debt' (up 11.5%). While this provides further evidence on financial reporting's role in supporting investment, the paper does not look at the duration of investments (which is not reported in capital expenditure disclosures) and 'long-term debt' is considered to be debt repayable more than one year after the balance sheet date, so does not match the meaning of 'long term' in this report.

There is also some research looking at the relation between record keeping and investment, although again it does not look at the investments' duration. **Basu et al (2009)**, using ethnographic data, find 'strong support for our ... hypothesis that the expansion of impersonal exchange facilitated by recordkeeping is ... associated with increasingly specialized division of labor and greater overall investment in physical, tangible and political capital'.

Long-term investment business models

EFRAG, tentatively in **EFRAG (2013)** and positively in **EFRAG (2015)**, has put forward proposals for an approach to financial reporting intended to reflect the business models of firms engaged in long-term investment. EFRAG (2015) describes this type of business model as follows, 'assets are purchased in order to generate a stream of revenue from period to period', but inward cash flows are also generated by sale of the investment assets, 'often ... in the market in which assets were originally bought and generally in a similar "condition" as when it was bought'.

Property investment companies would be an example of such firms. The report argues that:

'Changes in value of the assets from period to period are not relevant to periodic financial performance reporting, as the capital appreciation is secondary to the business model, the central feature is the stream of income derived from the assets.'

However, changes in the value of the investment assets, where they can be reliably measured and where the asset is in the condition in which it would be sold, would be reported but in OCI rather than profit or loss. Gains or losses would then be recycled to profit or loss when the assets are sold.

EFRAG (2015) also describes a liability driven business model (eg, insurers) where 'entities accept long-term obligations and may invest in assets to meet these'. The report states that: 'In order to meet their liabilities when due, these businesses may invest in assets in a business model very similar to the long-term investment business model', in which case they should account for the assets in the same way.

Muller et al (2011) look at the effects on information asymmetries, measured by bid-ask spreads, of disclosure of the fair value of investment properties in accordance with IAS 40, *Investment Property*, following mandatory adoption of IFRS. The authors report that:

'Using as a control group firms that voluntarily provided ... fair values [for investment properties] prior to the mandatory adoption of IAS 40, we find that mandatory adoption firms exhibit a larger decline in information asymmetry, as reflected in lower bid-ask spreads. However, we also find that mandatory adoption firms continue to have higher information asymmetry than voluntary adoption firms, which appears partially attributable to the lower reliability of fair values reported by the mandatory adoption firms.'

The paper provides evidence that, at least for one long-term investment business model, fair value measurements can reduce information asymmetries.

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