

The Theory and Practice of Discounting in Financial Reporting under IFRS

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Foreword

Discounting in financial statements is often perceived as a complex and somewhat academic topic. We believe it merits greater attention from standard setters, preparers and users of financial statements, amongst others.

Discounting is a requirement under several IFRS Standards. However, these requirements have different objectives and theoretical bases in different standards, and the way that discounting is to be applied differs.

In spite of this inconsistency and its complexity and importance, discounting is, however, paid only limited attention by academic accounting research.

Given the significant evidence gap therefore remaining, ICAS and EFRAG joined forces to fund this academic research project to critically evaluate and examine the use of discount rates in financial accounts, setting out:

- the underlying rationale for the different approaches in each standard;
- the economic consequences of the different approaches used, and;
- where appropriate, alternative methods that may be applicable.

This report also contrasts existing practices under IFRS Standards against public sector guidance to provide a deeper understanding of the relative strengths and weaknesses of discount rate estimation in financial reporting.

EFRAG and the ICAS Research Panel have been pleased to support this project. The views expressed do not necessarily represent those of ICAS and EFRAG, but we hope that the report will contribute to the important debate in the UK, Europe and internationally on corporate reporting.

In this context, we welcome engagement and discussion with the readers of this report, and are keen to hear your views on the following questions. Comments to be submitted by 31 March 2023 and will be placed on public record by both ICAS and EFRAG on their respective websites unless confidentiality is requested.

James Baird
Chair of the ICAS Research Panel

Chiara Del Prete
EFRAG FR TEG Chairwoman

December 2022

Readership questions

1. This academic study presents the view by some that a disjoint between the numbers presented in financial statements and the regulatory structures that companies must work within, e.g., Solvency II for insurance, means that the underlying economic activities of the company are not properly reflected in financial statements as the regulation dictates corporate actions/managerial decisions. Do you agree with this view? If not, why not?
2. Are you concerned about the effect small changes in the discount rate can have on the performance reported in the financial statements? If so, do you think this issue could be mitigated, and how?
3. When drafting accounting guidance in relation to discounting, should the focus be on depicting 'economic reality' or on the potential impact accounting numbers could have on the wider economy?
4. Do you agree with the authors of the study that discounting pension liabilities using the rate of AA corporate bonds does not result in a faithful representation and would only provide relevant information for the current year's awards (but not for prior awards)?
5. Do you agree with the authors of the study that the correct discount rate for pension liabilities would be the contractual accrual rate? If so, how would you determine this rate when there would be no identifiable initial consideration?
6. Do you agree with the statement by the authors that the discount rate applied by a company to its liabilities for the purpose of determining the present value of those liabilities should not reflect its own (or any) default likelihood?
7. The authors suggest there is inconsistency behind the conclusions in different accounting standards around discount rates. Do you agree. If so, does it matter and what, if anything, could be done about it?
8. Do you have comments on any of the other views presented by the authors?

EFRAG and ICAS invite comments on those questions until 31 March 2023, to be submitted to either or both of the following email addresses:

- research@icas.com

Comments are more helpful if they:

- address the question as stated;
- indicate the specific paragraph reference to which the comments relate; and/or
- describe any alternatives that should be considered.

Executive summary

Discount rates are a vital input to several areas of financial reporting under IFRS. However, discount rates have received insufficient attention in accounting research relative to their fundamental importance. The Institute of Chartered Accountants of Scotland (ICAS) and the European Financial Reporting Advisory Group (EFRAG) are therefore undertaking a programme of research to better understand how discount rates are applied in practice.

As part of this programme to build a more substantial evidence base for accountants, we:

- conducted an in-depth literature review of research on discount rates in accounting as well as other disciplines where research on discount rates forms a much more significant body of work e.g., economics;
- undertook a comparative analysis of the basis for conclusions across key standards where discount rates are a key input;
- interviewed experts on the application and use of discount rates in practice in these key standards; and
- conducted a detailed international survey of accounting practitioners on the use of discount rates in IAS 19 to allow for a quantitative analysis.

Reviewing the literature

We first review the substantial body of research into discount rates. The aim of this is twofold: first, is to set out the evolution of research into discount rates and the problems that researchers were attempting to address, as most research into discount rates sits outside of accounting; second, is to examine how discount rates feature in accounting research specifically. As discount rates are not a major focus of research, much of what is used in accounting imports concepts and ideas from other disciplines; e.g., financial economics.

The first part of the review focuses on research in economics. This is where discounting and decisions on the allocation of scarce resources through time (intertemporal choice) started. It is worth noting that intertemporal choice remains the fundamental problem that discounting is trying to solve. The key result of this section is to show that the model and approach to discounting as we know it today is not the result of significant amounts of empirical research and testing. Instead, it was formulated because of the normative appeal of the model setup and its comparability to the formula for calculating future values with compounding interest. What is very clear from this part of the review is that there remain significant debates to be had about the validity of the approach, and that there are numerous shortcomings that persist.

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The second part of the review examines discount rates in finance research. A core aspect of discounting in finance is that the underpinning framework for the generation and application of discount rates is based on notions of efficient markets and asset pricing models such as the Capital Asset Pricing Model (CAPM). While these approaches are empirically driven and based on statistical modelling of data, there remain significant concerns about the underlying information which markets and market prices convey. These are equilibrium pricing models and assume rational economic actors – a belief that is widely disputed and contested by the existence of behavioural finance.

The final part of the review examines discount rates in accounting research. While discount rates feature in some aspects of accounting research, e.g., pension accounting, there is little research where discount rates appear centrally. Moreover, the research that does exist does not critique or engage in debates around what the discount rate “should” be for a specific financial reporting objective. The consequence of this paucity of research and debate within academic accounting is that standards have imported approaches from other disciplines; e.g., finance. In doing so, this creates the impression that these approaches are settled science. However, as the evidence and discussion in the review show, this is not the case.

Analysis of the basis for conclusions

The analysis of the basis for conclusions considered IFRS 4 Insurance Contracts, IFRS 9 Financial Instruments, IAS 19 Employee Benefits, and IFRS 17 Insurance Contracts. In examining each standard, several issues emerged. First, the basis for conclusions across standards are often inconsistent with each other; e.g., the linking of assets and liabilities in insurance is acceptable but not so in pensions, despite the significant similarities between insurance and pensions. Second, some of the economic arguments put forward in the basis for conclusion can be questioned. For example, in the case of IAS 19, the conclusions state that future interest rates are predicted by forward rates. Yet, forward rates of interest do not have predictive power for future rates of interest (Sargent, 1972).¹

¹ Sargent (1972) showed that the expectations of the market in the current period, as reflected in the term structure of interest rates, do not forecast the prevailing rate of interest in subsequent periods.

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Expert interviews

In interviewing a range of experts (users, preparers, etc.), we used a semi-structured interview with a ‘snowball sampling’ approach, and focused on experts within an accounting context, rather than, say, professional economists. This allows for an accounting practitioner perspective and enables a broad spectrum of issues to be examined across experts and standards. Crucially, as the interview evolves, this methodology allows specific issues and discussions to be explored in depth and at the same time allows for views and positions in early interviews to be triangulated in subsequent interviews to test the substance of the positions being advanced.

From the interviews, three key messages emerged:

First, is an acknowledgement of a disjoint between the numbers presented in financial statements and the regulatory structures that companies must work within; e.g., Solvency II for insurance. Regulation dictates corporate actions/managerial decisions. The consequence of this, according to some of the people interviewed, is that the lack of coherence between accounting standards and regulation means that the underlying economic activities of the company are not properly reflected in financial statements.

Second, is the sensitivity of reported values to small changes in the discount rate. Across all standards we considered, valuation sensitivity and the noise that it creates within financial accounts was an issue with respondents. That said, the practical responses of interviewees to this issue differed depending on what was being valued. For pensions, the evidence shows that the asset allocation of pension funds shifts into matching assets; e.g., from equities to bonds. While for long-lived liabilities such as the cost of decommissioning a nuclear power station, the year-on-year sensitivity is reported and explained in the company accounts, rather than through an annual revisiting of the underlying modelling assumptions to try to smooth the volatility.

Third, the idea of economic consequences, i.e., that accounting numbers change behaviour and create economic reality, was largely restricted to shareholders and other investors. No interviewees thought of economic consequences extending beyond investors to wider stakeholder groups such as employees. There was therefore only a very narrow focus on the potential impact that accounting numbers could have on the wider economy.

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IAS 19 Survey

The final part of analysis was a survey of accounting professionals that examined IAS 19 specifically, as well as aspects of the financial reporting and the IASB Conceptual Framework. We chose IAS 19 as it is a standard that has a broad reach given the extent of legacy defined benefit (DB) pensions. Moreover, this standard generates significant engagement and debate. In addition, we asked questions to understand views on financial reports; i.e., balance sheet vs income statement, and the Conceptual Framework.

From the survey, the bottom (top) quartile of respondents expressed a score of 40 (80) out of 100 in terms of their satisfaction with IAS 19, with a median response of 60 out of 100. While the high grade corporate bond yield is, by some distance, the most preferred discount rate, it still represented a minority view amongst all respondents. The survey results also showed a significant cross-country variation in the choice of discount rates and the duration of liabilities; with higher discount rates associated with a longer duration of pension liabilities. In looking at financial statements, the income statement is seen by respondents as the most important part of the financial report.

While the IASB may view this as being consistent with their position, there is a large body of evidence that suggests the income statement is not the focus of IFRS Standards given their emphasis on the valuation of assets and liabilities.² There is therefore a tension between what market actors think is important and arguably what the IASB is focused on when setting standards.

Last, faithful representation followed by relevance were considered to be the most important parts of the Conceptual Framework of the IASB. Again, this is interesting considering some of the findings of the interviews, where the regulatory regime in which a company operates drives its economic activity, but this is not fully reflected in the accounting disclosures of the company.

² See for example, Holthausen and Watts (2001) on the logic of fair value; McCarthy (2004) on the political economy of fair value standards; Flegm (2005) on the objectivity of historical cost; Benston (2006) on fraud; Emerson et al., (2010) for a historical perspective; Lee's, (2014) speech to the [ICAEW on the general approach of fair value](#); Ball et al., (2015) on debt contracting;

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Policy recommendations

Based on our analysis there are several recommendations.

First, there needs to be a detailed programme of work that academic accountants engage with on issues of discounting, and what the 'correct' discount rate for a specific situation is. It is concerning that approaches are being imported from other academic disciplines in a way that suggests these methods are accepted without debate and controversy. To enable this, it may need a coalition of the willing to engage with academic funding bodies to create the impetus for the research to occur.

Second, while the IASB has not included discount rates in its work plan resulting from its Third Agenda Consultation, there is the option of other projects to be included for "*...any time-sensitive projects that may arise after this agenda consultation*".³ With interest rates increasing sharply in a number of countries around the world as central banks grapple with significant inflationary pressures, the impact that this will have on discount rates will be considerable. If the issue of discount rates is not revisited, then this has economic consequences, as current standards are not seen as fully reflecting the substantive economic activity of many companies. Moreover, given the evolution and improvements that we have seen in the application of discount rates to accounting for insurance contracts under IFRS 17, with respect to the CSM, it remains an open question as to why insurance accounting could be improved upon to better reflect the underlying fundamentals, but other standards cannot.

Last, there needs to be a principles-led best practice guide to help preparers. Current standards are seen as inconsistent with approaches to setting discount rates varying widely across standards. If current standards faithfully represent the underlying activities of a company, then it is incumbent on the IASB to support preparers in achieving this.

³ <https://www.ifrs.org/content/dam/ifrs/project/third-agenda-consultation/thirdagenda-feedbackstatement-july2022.pdf>

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Introduction

Discounting in economics and finance is a fundamental area of research. As such, there are many robust and ongoing debates about methodologies, perspectives and consequences. However, within accounting, both in academia and in practice, there is little obvious debate as to what the appropriate discount rate should be when measuring pension liabilities, insurance liabilities, impairment, and many other types of liability.

While the appropriate discount rate for a particular purpose may not be unique and may be subject to significant degrees of uncertainty – for example, the decommissioning of a nuclear power station – there are clearly many discount rates that are inappropriate.

The lack of analysis and debate within accounting, relative to economics or actuarial science, for example, is puzzling. The application of an inappropriate discount rate may, and usually does, have significant economic and financial consequences. This typically occurs through over/understating the present value of an asset or liability, or by improperly reflecting the underlying economic substance of the activities of the company. In such instances, the information presented in a set of financial statements would fail to meet some of the key objectives of standard setters, such as faithful representation or relevance.

Much of what is used as evidence for the choice of discount rates in financial reporting is based on areas outside of accounting research; e.g., financial economics. It is of paramount importance to set out the debates that exist in these other areas in order to inform debates in financial reporting.

Research approach

To start our research into discount rates, we present the origins of discounting in economics and the problem of intertemporal choice; i.e., trading off consumption through time, and the subsequent evolution of economic research in this area. We then introduce some of the approaches from academic finance that have subsequently been embedded in discounting more broadly, in areas such as financial markets and corporate finance. In academic finance, discounting is underpinned by the efficient market hypothesis, whereby prices reflect all publicly available information and that prices are always correct, i.e., in equilibrium. This view is based on a world of rational economic actors; but this belief and view of the world is not without its critics. However, what is clear in the approach taken by the IASB, in its use of mark-to-market accounting, and the valuation of assets and liabilities as being key for financial statements to be useful, is that this financial economics approach is most definitely embedded in the logic of the IASB.

Introduction

Next, we examine the basis for conclusions of individual standards to understand the underlying rationale for the discount rates chosen by the IASB. In doing so, we can consider whether the choice of discount rate is based on a sound economic rationale, and whether there are conflicting and inconsistent approaches to discounting across key standards.

To investigate specific challenges around the standards, we report our findings from a series of interviews with a range of stakeholders including auditors, users, preparers, and standard setters on discounting in financial statements. This enables us to understand both standard-specific challenges from individuals with relevant specialist experience, as well as the more holistic challenges that arise from the application of different discount rates across a set of financial statements. Interviews are a useful approach to understanding challenges within the current standards, as they allow for a deeper investigation of issues that may arise.

Next, we undertake a survey of stakeholders and focus on one standard – IAS 19 Employee Benefits. IAS 19 has been the focus of significant debate, particularly within the actuarial profession. As such, the awareness of the issues around discounting in this standard is higher, and so more likely to elicit views and responses from across interested stakeholders. Moreover, while defined benefit pensions are largely closed to new members and further accrual, these are very long-lived liabilities. Most companies will therefore have a defined benefit liability on their balance sheet currently or will have done so in the recent past, making it the ideal standard to examine broader issues around discounting in financial statements.

Finally, we present some conclusions and recommendations based on our analysis and interviews with stakeholders.

Origins of discount rates

The aim of this section is to set out the origins of discount rates and discounting. It is often the case that the basis for approaches to discounting across many areas of economics and finance are simply accepted as being true. Consequently, there is often an unquestioning acceptance of what are often multifaceted and complex areas of research with very long-lived histories, which are important to be aware of in both contemporary and applied settings.

Discount rates and intertemporal choice

Discount rates are first found in economics and intertemporal choice. Intertemporal choice is a fundamentally important area of economics which considers decisions that trade off costs and benefits occurring at different times when allocating scarce resources. In this context, the discount rate is functioning as a measure of how much greater we value a unit of benefit today compared to the future. Such decisions are made by individuals, companies and governments and have wide-ranging economic consequences; e.g., paying out dividends or investing in a new plant.

The foundations of this work are found in the writings of Adam Smith on the economic prosperity of nations and John Rae on the psychology of intertemporal choice (Frederick et al., 2002). However, the more formal mathematical representation of intertemporal choice is set out in Samuelson (1937) who proposed a discounted utility (DU) model, whereby the discount rate captures the factors that impact intertemporal choice e.g., marginal utility of consumption and risk.

Samuelson's approach was widely accepted, in part, because of its simplicity and its resemblance to the formula by which future values with compound interest are calculated.

$$\text{Future Value at time } T = \sum_{t=1}^T CF_t \times (1 + r)^{(T-t)}$$
$$\text{Present Value} = \sum_{t=1}^T \frac{CF_t}{(1 + r)^t}$$

Origins of discount rates

It was on its link to the future value calculation that the method was accepted. Moreover, Samuelson was concerned that the model may not be an adequate representation of the world and whether the normative prescriptions of the model were appropriate (Frederick et al., 2002).

Koopmans (1960) is arguably the next milestone in the development of discounting and discount rates. This work showed that the discounted utility model worked under a set of reasonable assumptions, such that individuals would exhibit positive time preference.⁴ Consequently, interest rates have to be positive in the current period as this incentivises the deferral of consumption in the current period to consumption at some point in the future.⁵

There are several key assumptions that underpin the approach to discounting as described in the specific DU framework of Samuelson:

1. Most importantly, the model requires a rational economic agent.
2. Any new alternatives are assessed in relation to existing plans and so new alternatives are integrated to existing plans.
3. A DU model assumes the pattern of utility does not matter (utility independence) e.g., if discount rates are positive, utility that is further out in time always has a lower value in the present.
4. Discount functions are the same, irrespective of what is being discounted e.g., holidays and saving for a pension have the same discount function.
5. There is a constant discount rate in each period, thereby allowing for the time preference of an individual to be summarised as a single discount rate, and so an overall discount function does not need to be estimated.
6. The utility of consumption of a good in the current period is unaffected by identical consumption in the previous or next period (consumption independence).
7. Last, there is diminishing marginal utility and positive time preference. As Frederick et al., (2002) note, it is often the case that there is an assumption of a concave utility function and a positive discount rate. This is not without contention. While there is empirical evidence for a concave utility function i.e., as people spread consumption over time, there is debate on the presence of positive time preference.

⁴ Positive time preference is the desire of individuals to consume more in the present than in the future such that interest rates are positive and therefore entice saving and deferral of current consumption for some level of consumption in the future. The emergence of negative yields on debt securities is problematic in this regard.

⁵ It is worth noting that interest rates can be theoretically negative if the economy is expected to shrink, or there is a strong precautionary savings motive, and it is not possible to just store cash under the mattress.

Origins of discount rates

Hyperbolic discounting

At this point it is useful to digress into behavioural economics and psychology. Individuals have been documented to exhibit hyperbolic discounting.

The following example illustrates hyperbolic discounting whereby an individual would prefer £105 in 45 days to £98 in 44 days but would prefer £98 today rather than £105 tomorrow (e.g., Solnick et al., 1980; Millar and Navarik, 1984; Green et al., 1994).

Individual discount rates are therefore dependent on the time horizon being considered (Lowenstein and Prelec, 1992). Consequently, individuals exhibit a declining discount rate through time rather than a constant discount rate as assumed in the DU model proposed by Samuelson (1937). Moreover, there is considerable evidence to support the existence of non-exponential discounting (e.g., Laibson, 1997) and it is now a well-established tenet of behavioural economics.⁶ The existence of such an anomaly also illustrates one of the concerns that Samuelson had with the proposed DU approach; namely, whether the model appropriately reflected the world.

This section has provided some of the most important historical context and evidence on the foundations of discounting and its theoretical underpinnings. In addition, it has highlighted some of the critiques and areas of debate that exist within discounting in economics. The next section of the review proceeds with discounting in finance.

Determining discount rates in academic finance

In academic finance, and often in practice, the selection of the discount rate is based on asset pricing or factor-based models. This approach to discounting is rooted in Markowitz (1952) and the development of Modern Portfolio Theory, and the extensions to this derived by Sharpe (1964) which resulted in the Capital Asset Pricing Model (CAPM).

From this model, if a project was wholly financed by equity, then the CAPM expected return would form the basis for the discount rate used in any corporate investment appraisal. While, if there were to be a mix of financing between debt and equity, then the appropriate discount rate when using an equity beta as opposed to an asset beta would be the Weighted Average Cost of Capital (WACC).⁷

Theoretical framework – rationality

Underpinning these models, and much like in economics, are notions of rational economic actors and market efficiency as described by Fama (1970) in the Efficient Markets Hypothesis (EMH).

⁶ Collections of individuals, each with different exponential discount functions, will mathematically exhibit generalised hyperbolic discount functions.

⁷ The WACC can also be modified to incorporate the tax deductibility of debt interest.

Origins of discount rates

Here risks are appropriately priced and any new information that impacts prices is quickly incorporated into prices to reflect a reappraisal of future cash flows and/or the risk of a security. In this sense, the market can be thought to be semi strong-form efficient.⁸

However, the assumptions that underlie all this work are not plausible, and so there is an open question hanging over much of this work as to its real-world relevance despite its widespread use in practice, both in financial reporting and beyond. For example, the EMH states that prices fully reflect all available information. In practice, the EMH reduces to the proposition that: if you can hedge away all correlated risk, and you can then diversify over all uncorrelated risk, then you should expect to earn only the riskless rate. The riskless rate of this proposition, of course, does not exist, but is usually proxied by a zero-coupon government bond yield, such as the T-Bill rate.

It is surprising that the EMH has survived both empirical falsification and theoretical criticism. On this latter point, Grossman and Stiglitz (1980) demonstrated that an efficient market requires that information is costless, leading to a fundamental paradox for a system in which prices convey information.

Consequently, given that information is costly, the foundations of such models need to be much more closely examined or, alternatively, the outputs of these models treated with much more caution than is often the case.

Despite these rather basic critiques of these models of discounting as applied in finance, there is a significant amount of academic research that seeks to build and extend the CAPM (too many to review exhaustively). There are, however, major developments that shifted the analytical frame significantly, and it is this research that is most noteworthy for consideration here. Arguably, the most important model after the CAPM is the work of Ross (1976, 1978) on the Arbitrage Pricing Theory (APT).⁹ However, this approach, among many others, was criticized by Fama (1991) as fishing i.e., finding the result in the model rather than economic theory.

Factor models and the factor zoo

The next significant development was the Fama and French (1993) 3-Factor Model. This model built on the CAPM framework and added in two additional factors that explained the returns to a given stock, namely size and market-to-book. While the patterns in the data are obvious within their published work, there is no economic reason as to why these factors are compensated for with risk premia in preference to many other potential factors.

⁸ Under the EMH, efficiency exists in three forms; weak, semi-strong and strong, which relax various aspects of the hypothesis, in search of greater concordance with empirical reality.

⁹ Arbitrage pricing theory (APT) is a multi-factor asset pricing model. Under this model an asset's returns can be predicted using the linear relationship between the expected return on the asset and macroeconomic factors that capture systematic risk.

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The fact that the economic rationale for the inclusion of factors in many asset pricing models is patchy at best, highlights a key concern with much of this approach to discounting. Ultimately, the question: ‘What is the economic rationale for a factor being included in a model?’ needs to be better articulated and justified.

To date, there have been some ex-post rationales for factors, such as value and growth (size and book-to-market), but for others the economic motivation for the inclusion of the factor is less clear. The consequence of this is the ‘factor zoo’ (Cochrane, 2011). Moreover, there is a wider critique of this research approach. When empirical observation does not follow the underlying paradigm of rationality etc., then this presents an anomaly within this framework, and so models are ‘tweaked’ rather than re-visiting the underlying fundamental tenets on which the approach is built (Cai et al., 2013). This therefore raises the question of whether this approach to research is aligned with the notion of scientific progress as described by Popper (1934), Kuhn (1962) and Lakatos (1976). Given that a range of questions around discounting in both economics and finance remain unresolved, potential difficulties arise when these rates are applied in practice without further consideration.

Discount rates in actuarial practice

This next section considers discussions of discounting that have emerged in research in pensions. To start, we present the approach and rationales of academic finance as these have latterly been used in actuarial methods in both pensions and insurance. While the earlier sections explain the history, context, and some potential issues with measurement, this section sets out the financial economics case, which is arguably now the prevailing paradigm.

Simply put, the intellectual basis for discounting of pension liabilities using a market rate is based on the belief that the market rate is the ‘true’ cost of the pension to the sponsor at a point in time. From the perspective of financial economics, the discounting of a stream of financial payments should be at a rate that reflects their risk and covariance with priced risks (Treynor, 1961; Sharpe, 1964; Lintner, 1965a & 1965b). Here there are two major critiques. First, is the assumption that the market price is the correct estimate of the cost and that the signal we are receiving from the market is correct – i.e., that the market is efficient. Second, that risk is captured in the variability of stock returns, a key assumption of the CAPM. However, this says nothing about uncertainty. In economics there were significant debates about risk and uncertainty and the difference between the two (Knight 1921; Keynes 1936).¹⁰

¹⁰ The classic distinction between risk and uncertainty as described by Knight (1921) is two situations: one where we can have probabilistic estimates of some events i.e., risk, and the second there is no probabilistic estimate that can be generated i.e., uncertainty. Knight illustrated via the question, ‘Would Lloyds of London insure this?’ If the answer is yes, then it is a risk; and if the answer is no, then it is uncertainty and thus uninsurable.

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In both economics and finance, this debate has however been largely non-existent for most of the past 80 years and has only recently emerged as a major focus of public discourse through works such as *Radical Uncertainty* (Kay and King, 2020). As such, these widely-applied models are silent on the issue of uncertainty, but this must be a crucial factor in any decision.

With regards to pensions, Exley et al., (1997) first proposed the use of financial economics and market-based discount rates i.e., the application of market bond yields, to replace the traditional actuarial valuation of pension liabilities. Historically, actuarial methods were based on long-term cash flow projections and the discounted present value of these future cash flows based usually on the expected return on pension assets. However, such an approach included significant discretion on the part of the actuary on crucial factors e.g., the long-run expected return on the pension assets. Consequently, the desire for an ‘objective’ and observable number for the discount rate emerged, as in some instances, the estimates produced by actuaries were potentially too optimistic (leading to a higher discount rate and thus a lower liability) and the variation across different schemes was unhelpful for comparing risks across companies.

Other methods of deriving the discount rate

Outside of the methods above, there are a wide range of other approaches for estimating the discount rate. For example, funded US public pension schemes still apply the traditional actuarial approach of deriving the discount rate from the expected return on pension plan assets. However, this approach skews investment towards risk assets such as equities, as this inflates the discount rate and understates the ‘true’ cost of a pension liability (Novy-Marx and Rauh, 2011). Conversely, where the discount rate is an AA bond yield for example, investment behaviour is skewed in a different way. In the UK, pension investments shifted from equities into AA bonds post-2005 as this created a matching portfolio of assets for the measurement basis for liabilities (Greenwood and Vayanos, 2010).

The approach that is taken across pensions and insurance, and often enshrined in the regulatory regime, is one based on financial economics. This method, however, is based on some very significant assumptions. Moreover, if the debates arising in economics and finance more generally are considered, there is an open question as to the appropriateness of this approach. Many advocates of the financial economics approach would argue that a discount rate based on the expected return on plan assets pushes people towards risk assets – for example, towards equities in order to understate their liabilities. However, the current accounting regime pushes pension schemes and insurers to ‘matching’ assets, which also has economic and financial impacts, and the long-term consequences of this ‘matching’ remain to be seen.

Origins of discount rates

Discount rates in accounting

There is a body of work that looks at accounting standards where discount rates are clearly of paramount importance. For example, Kiosse and Peasnell (2009) examine whether changes to pension accounting have changed the provision of pensions – i.e., has the move to mark-to-market pension accounting resulted in scheme closures? They conclude that increased volatility of employers' contributions to corporate pension schemes and the increased cost of providing a DB pension was a major factor in the decline of defined benefit pensions. Similarly, Barthelme et al., (2019) examine the impact of changes to IAS 19 and show that the withdrawal of the 'corridor method' for smoothing under IAS 19R increased equity volatility and resulted in a move from equities into bonds.

However, these papers do not engage directly in what the 'correct' discount rate should be. One notable exception is Street et al., (2018) which discussed the fact that small changes to the discount rate results in large changes to the valuation of pension liabilities. To this end they note the scheme deficit (or changes therein) is taken through the OCI, and as such it does not affect the income statement, but it does affect the company's equity. The discount rate used does also affect net interest income – this is calculated as the product of the net of assets and (present value of) liabilities and the discount rate utilised. However, when the net interest cost is accounted for through financial income, rather than operating income, it affects the net, rather than the operating, profit.

Another aspect of research into pensions is the opportunistic use of pension accounting assumptions, including the discount rate to either flatter the balance sheet of the company (Billings, et al., 2016) or to create leverage with employees for wage negotiations, by undervaluing assets and overstating liabilities (Comprix and Muller, 2011).

Discount rate research outside of pensions

Outside of pensions, there is again very little on discount rates. For example, when an asset-specific discount rate is unavailable to estimate the value in use of assets subject to impairment testing, IAS 36.A16 presents entities with three choices: an entity's WACC estimated using techniques such as the CAPM; an entity's incremental borrowing rate; or other market rates. Analysing these choices, Husmann and Schmidt (2008) recommends the IASB only allow the use of an entity's WACC as the starting point. Kvaal (2010) disagrees with Husmann and Schmidt (2008) and suggests that the entity's incremental borrowing rate can be a useful proxy of an entity's cost of capital within a CAPM framework. In their rebuttal to Kvaal (2010), Husmann and Schmidt (2011) clarify that IAS 36 does not require the use of the CAPM framework when calculating an entity's WACC, hence their recommendation to only include an entity's WACC as a starting point when determining a suitable discount rate under IAS 36.

Origins of discount rates

Implications

In summary, while there are academic accounting papers that examine issues involving standards where discount rates are used – e.g., pensions and impairment – there is almost no research that discusses what the ‘correct’ discount rate should be. Given the long-lived and often fractious debates that exist in economics, finance, actuarial science and so on, this strikes us as odd. Crucially, this lack of research and questioning implies two things. First, academic accounting research has been severely lacking in such a crucial area. Second, and most importantly, both accounting researchers, and the IASB, who often engage the academic accounting community on knowledge sharing – for example, through the IASB Research Forum – are accepting approaches to discounting from other disciplines. As such, the lack of knowledge generation vis-à-vis accounting research means that the IASB does not have a depth of accounting research to draw upon when thinking about what the appropriate discount rate for a particular standard should be. Similarly, it is not clear that the IASB has seen the subject matter as worthy of investigation in the way we are suggesting, as evidenced by their most recent paper¹¹, which states that the IASB will not be doing a more general piece of work on discount rates.

Choosing discount rates

Before moving on to consider the published rationales for the choices made in the various standards we are going to analyse, we offer here an analytic framework in which these choices can be examined. In each standard there is often much discussion surrounding the choice of the discount rate, and in some cases, even empirical analyses of the choices made. As such, it can be difficult to provide a coherent whole.

The key insight over these questions of choice is that the set of appropriate discount rates is determined by the purpose for which the discounting is being undertaken. In some cases, the appropriate rate may be unique and so there is a correct discount rate, and by extension, many incorrect discount rates.

Illustrative examples

A zero-coupon corporate bond provides the classic illustration of the situation in which the discount rate is determined by the terms of issuance. A zero-coupon bond is simply a single payment at the maturity of the obligation for which the issuer received an amount of money at the inception of the contract (issuance proceeds). This contract has a fully determined internal rate of return, which is the cost of the obligation to the issuer. It is unique and time invariant. It is the rate at which the bond should be accrued in the issuer accounts; equivalently discounting the maturity proceeds will return the same accrued amount.

¹¹ [IFRS Discount rates project summary](#)

Origins of discount rates

This is recognised by the IASB in IFRS 16 when considering leases. It specifies that the rate implicit within the lease should be used when that is readily determinable.

If we are considering the financing of a DB pension scheme's liabilities with a view to establishing the sufficiency of the currently held assets to meet and discharge those liabilities as they come due, then to use the expected rate of return on those assets as a discount rate would allow for an estimate of this. Clearly, this rate is subjective and highly context (scheme) specific. As such, there are a wide range of appropriate rates.

Further, the rate may even include allowance for actions expected to occur in the future and the question of prudence enters the rate choice decision. Discount rates for this purpose are also not necessarily lower bounded at zero. If the assets held consist of bonds with negative yields, and the expectation is for these negative rates to prevail over the term of the liabilities, then the appropriate discount rate may be negative, and discounted present values will be higher than the projected values in the future of the liability cash flows.

In this financing situation, the discount rate is exogenous – that is, it is determined outside of the terms of the contractual obligation, and is therefore not expected to be time continuous. A time-continuous rate would return the same value by discounting projected liabilities as would arise from accrual of contributions to any date. The time series of discount rates used for this purpose is not invariant, giving rise to interim gains or losses from this variation rather than from any change in the ultimate liabilities or their remoteness in time. If we consider the discount rate to be a measure, we have a time series of different measures giving rise to gains or losses independent of the liabilities. Consequently, comparability of results over time and across companies is confounded and compromised by this.

Counterfactual discount rates

By contrast, when the purpose is to establish the present value of the accrued liabilities of a company sponsoring a contributory or funded defined benefit pension scheme, we have a situation where the discount rate is unique. It is fully determined by the terms under which the pensions were awarded, and liabilities projected. This is consistent with the treatment of lease liabilities under IFRS 16. The value of the corporate promise is independent of how this promise is financed. This rate, which we call the Contractual Accrual Rate (CAR), varies only if the projected values of the ultimate liabilities are altered. In the absence of such changes to projected liabilities, it is time continuous and the accrued and discounted present values will be the same at any point in time. Comparisons of results over time are simple and valid, reflecting only changes in the projected liabilities themselves, as the measure is otherwise invariant.¹²

¹² For a full discussion of the Contractual Accrual Rate see, [A Primer on The Risk Structure and Contractual Accrual Rate of DB Pensions:](#)

Origins of discount rates

In this case, the discount rate is bounded below at zero. The present value today logically cannot exceed the sum of the future projected liabilities.

In the case of unfunded DB schemes for which no initial contribution was made, but with the same purpose in mind, there is a problem of initial recognition. Indeed, the question of initial recognition extends to liabilities for which there is no identifiable initial consideration. This may be resolved in one of two ways. An arbitrary notional contribution may be chosen, and that will determine the resultant CAR as noted previously. Or, a discount rate is chosen, such as the company's weighted average cost of capital (WACC), and the discounted present value to the date of initial recognition is calculated and used as the notional initial value. In either case, the rate is then invariant and time consistent as in the funded case earlier.¹³

The use of expected return of assets or the market yield prevailing on AA corporate bonds, the current standards, are therefore both examples of counterfactual discount rates when used for the purpose of determining the present value of a company's DB pension liabilities. As such, the use of an AA yield essentially shows what the liabilities of a scheme would be, if we were looking to fully offset future projected liabilities today by purchasing a portfolio of AA corporate bonds, which DB schemes traditionally do not. As counterfactuals, in the opinions of the authors, these rates therefore fail the test of faithful representation.

Credit impaired assets

There is a further concern, which is a recurrent theme in discussions across standards where discounting occurs: that of credit. Much of the discussion in IFRS 9, for example, is concerned with the valuation of credit-impaired assets. It is clearly appropriate to consider the credit standing of an asset, as this directly affects the value and economic benefit of that asset to the holder of the asset. However, the value of the asset is not the same as the cost of the liability to its creator. The cost to be reported by the creator of a liability is independent of its value to a third party in a market.

Put another way, the amount of a liability of an enterprise is not affected by the degree of difficulty it has in meeting its service and repayment obligations. However, the value of this liability, as an asset of some third party, is clearly determined by the conditioning of the amount with the likelihood of receiving full service on time and in full (the issuer's credit standing).

In the aftermath of the financial crisis, we saw several banks take credit in their books for the decline in value of their issued bonds; declines which came about due to concerns about the viability of the banks themselves. If these banks had bought these bonds at these depressed prices, they would clearly have generated profits relative to their accrued value, but they did not. The obligations of these issuers did not change; the quantum of their service obligations was invariant.

¹³ It also worth noting that in the case of accounting for pensions, the transaction price at initial recognition would simply be the contributions to the scheme.

Origins of discount rates

The key point here is that the value of an asset to a third party is not the same as the cost of the equivalent liability to its issuer. If a company values its liabilities as if it will not honour some part of them, this breaches the principle of good faith, which underpins commercial dealings. The discount rate applied by a company to its liabilities for the purpose of determining the present value of those liabilities should not reflect its own (or any) default likelihood.

The economic consequences of discount rate choices

As we have made numerous references to the negative consequences of the use of inappropriate rates, it is useful to set out the manner in which these consequences may come about.

Simply put, a discount rate determines the trajectory of present value of a liability from the date of measurement to its maturity. Different discount rates therefore produce different, higher/lower trajectories to that projected liability. The consequence of these different projected trajectories is that they will lead to different patterns of contributions over time. Individuals may be indifferent to the differing patterns of these costs if no action is based upon them. However, when decisions are made based upon these values, such as the required funding level of a DB pension scheme, additional relative costs will be incurred. Low discount rates for example result in demands for additional immediate funding.

To illustrate this point, suppose we create an obligation to pay £1,000 in 20 years. Let us then consider three alternate discount rates 2%, 5%, and 8%. Obviously, the initial values under these discount rates vary – the values respectively are: 2% – £672.97, 5% – £376.89, 8% – £214.55. Each of these rates bring with them a different future debt service expense. For the 2% case this debt service expense is lower every year compared to the debt service expense at 5%. However, the 8% case has not only a lower initial value, but also a lower debt service expense in amount for the initial four years, but is then higher for the remaining 16 years of the liability.

Moving from one rate to another, as is the case when market-based rates are used, therefore changes the current present value and alters the basis of the ongoing cost to service the obligation.

Rationale and basis for conclusions

We next review the IASB's published 'Basis for Conclusions' across a number of standards, as these are intended to provide the rationale for the standards ultimately settled upon. We consider the arguments offered in support of IFRS 4, IFRS 9, IAS 19, and IFRS 17.¹⁴ We present our principal concerns with these arguments as there is a general lack of consistency across standards. While many of the objections to the then-proposed standards were included, there are some objections which are absent.

Our focus is principally upon the discount rate choice, but we also mention some more general concerns from an economic perspective with respect to what has been proposed. As the stated purpose of discounting is central to appropriate choice of discount rate(s), the purpose is simply the derivation of the value of a liability to the company.

IFRS 4: Insurance Contracts

In the Basis for Conclusions for IFRS 4¹⁵ the document covers just phase 1 of that two-part project and states: *"It is beyond the scope of phase 1 to create a detailed accounting regime for insurance contracts. Therefore, the IFRS standard does not specify:*

..., (b) whether or how the cash flows are discounted to reflect the time value of money or adjusted for risk and uncertainty. ..."

There is also some inconsistency within the Basis for Conclusions for IFRS 4. For example, *"The IFRS identifies two practices that include future investment margins in the measurement of insurance liabilities: (a) using a discount rate that reflects the estimated return on the insurer's assets, (b) projecting the returns on those assets at an estimated rate of return, discounting those projected returns at a different rate and including the result in the measurement of the liability. Some suggested that (b) should be eliminated in phase 1 because they regarded it as less acceptable than (a). **However, the Board noted that although (b) appears more obviously incorrect than (a), these two practices have the same effect and are logically equivalent.**"* (Emphasis added)

It is difficult to see how these two methods might be considered equivalent; they will produce very different trajectories, over time, for the asset or liability value. We note that both methods introduce a dependence between assets and liabilities, and that a liability value derived in this manner will not be a faithful representation of the cost of that liability to the insurance company.

The Basis for Conclusions for IFRS 4 states: *"an undiscounted measure is inconsistent with fair value."* This may be true, but the purpose and resultant discount rate employed is critical. The fair value – that is, the value to a third party

¹⁴ Discount rates are discussed in IFRS 7, but this standard is only a disclosure standard with the substantive valuation aspects occurring in IFRS 9.

¹⁵ It is worth noting that IFRS 4 was seen as a temporary standard while the IASB developed phase II.

Rationale and basis for conclusions

in a market of an asset created by the liability of a company – is not the same as the cost of that liability to that company.

The overarching argument for the standard is: *“The Board noted that introducing a current market-based discount rate for insurance liabilities rather than a historical discount rate would improve the relevance and reliability of an insurer’s financial statements.”* This assertion is questionable. The standard which involves the choice of a current market-based rate is counterfactual to the primary question of concern: what are the current accrued liabilities of the enterprise?

By choosing a rate today, and using it to discount cash flow projections, we are valuing those cash flows as if they were incurred today. The reality of course is that these liabilities already exist and were most likely created under a range of conditions and terms. The fair value approach therefore discards information with respect to the creation and evolution of the liabilities up to the reporting date in the current financial year.

In a footnote, the Basis for Conclusions for IFRS 4 states: *“Some approaches attempt to find a portfolio of assets (‘replicating portfolio’) with characteristics that replicate the characteristics of the liability very closely. If such a portfolio can be found, it may be appropriate to use the expected return on the replicating portfolio as the discount rate for the liability, with suitable adjustments for differences in their characteristics. **However, replicating portfolio approaches should not be regarded as using an asset-based discount rate because they attempt to measure the characteristics of the liability. They are not based on the characteristics of the actual assets held, which may or may not match those of the liability.**”* (Emphasis added)

However, replicating portfolios are static matches of the projected cash flows of currently projected liabilities by the expected cash flows of an asset portfolio. Such portfolios do not constitute dynamic matches of the cash flows, and so will not capture the characteristics of those liabilities and their changes over time.

The more important argument against replication as a valuation method is that the assets acquired are tradable, which means that their prices are upwardly biased by liquidity premiums. There are also many asset portfolios which might replicate the cash flows of a specific set of liabilities, and these different replicating portfolios will vary in cost depending on the assets within the portfolio.

IFRS 9: Financial Instruments

The Basis for Conclusions for IFRS 9 has numerous references to discounting and discount rates. Among these are: *“The original effective interest rate is the rate that exactly discounts the expected cash flows (before deducting expected credit losses) of the asset to the transaction price (i.e., the fair value or principal) at initial recognition.”* Interestingly, there is no such statement of this rate in the basis for conclusions of IAS 19. This is in fact the correct discount rate for the evaluation of

Rationale and basis for conclusions

pension liabilities, which we have referred to in this and other publications as the contractual accrual rate. It is time consistent.

IFRS 9, however, does not recognise that the discount rate is a measure, and that it is usually desirable for a measure to be invariant. For example, the Basis for Conclusions for IFRS 9 states, “As a result, the IASB proposed in the 2013 Impairment Exposure Draft that the discount rate to be applied when discounting the expected credit losses that arise from a loan commitment or a financial guarantee contract would be the rate that reflects:

(a) current market assessments of the time value of money (i.e., a rate that does not provide consideration for credit risk such as a risk-free rate); and

(b) the risks that are specific to the cash flows, to the extent that the risks are taken into account by adjusting the discount rate instead of adjusting the cash flows that are being discounted.”

It is notable here that the standard calls upon a theoretical but non-existent “risk-free” rate. It is analytically incorrect to consider variation of a discount rate as being equivalent to variation of the projected cash flows. This misunderstanding is common and has led to investment management practices such as ‘Liability Driven Investment’ where variability of the discount rate is hedged. This is hedging of the measure not the substance of the projected liabilities.

IAS 19: Employee Benefits

The IAS 19 Basis for Conclusions is accurate in much of its analysis. However, some of the statements are imprecise regarding the actual management of a pension scheme. For example, “Some believe that, for funded benefits, the discount rate should be the expected rate of return on the plan assets actually held by a plan, because the return on plan assets represents faithfully the expected ultimate cash outflow (i.e., future contributions).” This is not the reason as to why so many believe this to be the appropriate rate. The return on assets approach does not necessarily require those assets to replicate the liability cash flows. Indeed, if this expected return on assets basis is utilised and a deficit arises, there may not even be assets available offering equivalent terms to those held.

There is also the unresolvable problem that the fund would not have the funds to acquire such additional assets. IASC “**rejected this approach because the fact that a fund has chosen to invest in particular kinds of asset does not affect the nature or amount of the obligation.**”¹⁶ (Emphasis added) This is true. The liabilities of a company are independent of the manner in which they are financed. However, there is in fact a parallel and equivalent argument applicable to market-chosen rates i.e., this argument holds for the discount rate chosen in the final standard.

¹⁶ Source: <https://www.frc.org.uk/document-library/asb/2008/discussion-paper-the-financial-reporting-of-pensi>

Rationale and basis for conclusions

Ordinarily, we should be indifferent to the choice of discount rate; it merely defines a trajectory of present values from today to the projected future payments. These projected ultimate amounts are independent of the discount rate. Concerns over the relevance and accuracy of the discount rate only arise when we base actions upon the reported values. The discount rate is not a risk factor.

The basis for conclusions reiterates this independent position: *“In particular, assets with a higher expected return carry more risk and an entity should not recognise a smaller liability merely because the plan has chosen to invest in riskier assets with a higher expected return. **Therefore, the measurement of the obligation should be independent of the measurement of any plan assets actually held by a plan.**”* (Emphasis added)

Indeed, in the most general terms, the assets and liabilities of a pension scheme are independent and observed correlations are an artefact of the valuation method.

We are offered a rationale in the Basis for Conclusions for IAS 19 for the choice of a market-based rate. *“IASB decided that the discount rate should be determined by reference to market yields at the balance sheet date, because:*

(a) there is no rational basis for expecting efficient market prices to drift towards any assumed long-term average, because prices in a market of sufficient liquidity and depth incorporate all publicly available information and are more relevant and reliable than an estimate of long-term trends by any individual market participant.

(b) the cost of benefits attributed to service during the current period should reflect prices of that period.

(c) if expected future benefits are defined in terms of projected future salaries that reflect current estimates of future inflation rates, the discount rate should be based on current market interest rates (in nominal terms), because these also reflect current market expectations of inflation rates.

(d) if plan assets are measured at a current value (i.e., fair value) the related obligation should be discounted at a current discount rate in order to avoid introducing irrelevant volatility through a difference in the measurement basis.”

In looking at these statements, (a) is just a variation on the often-stated idea that current bond yields are predictive with respect to future rates. This has been proven false both theoretically and empirically.¹⁷

For (b), this misses the point that the scheme should also reflect the costs or prices of all prior awards and assumes that new awards should be based upon market investment opportunity. However, the terms of new awards are in fact at the discretion of the employer company and usually unrelated to the expected returns from markets.

¹⁷ Sargent (1972) showed that the expectations of the market in the current period, as reflected in the term structure of interest rates, do not forecast the prevailing rate of interest in subsequent periods.

Rationale and basis for conclusions

Point (c) is not supported empirically. In fact, long term equity returns are more highly correlated with retail price inflation than interest rates.¹⁸

Finally, in point (d), there is a form of recognition of the need for a common basis of measurement, but does not recognise that the mandated standard does not provide this. The standard, which uses fair value (usually market prices) for assets and a discounted present value for liabilities is mixed attribute in nature. Other than for certain fixed interest securities, the implicit discount rate embedded in market prices of securities is unknown and unknowable and must differ from bond-based discount rates. Empirical analysis suggests that it has offered higher returns than were achieved by bonds (the equity risk premium being an example). This mixed attribute property introduces both spurious volatility and upward price bias into liability valuations, and has led to many questionable actions on the part of employers and trustees.

The concerns raised previously were not unknown to the standards-setters. *“However, the Board believes that a measure should be volatile if it faithfully represents transactions and other events that are themselves volatile, and that financial statements should not omit such information.”*¹⁹ In this statement there is an implicit denial that much of the volatility we observe is an artefact of the discount rate employed, not the economic and financial developments within the scheme. For example, the standard setters expressed concern that entities might try to eliminate short-term volatility by making long-term economically inefficient decisions about the allocation of plan assets, or by making socially undesirable amendments to plan terms, but then concluded: ***“However, in the Board’s view, it is not the responsibility of accounting standard-setters to encourage or discourage particular behaviour.”***²⁰ (Emphasis added)

This statement does not recognise that standards inevitably affect behaviour, a well-established consequence in the standard setting literature. Moreover, there is significant evidence, some of which is captured in the review above (e.g., Greenwood and Vayanos, 2010) that IAS 19 has induced such economically and socially undesirable behaviour.

IFRS 17: Insurance Contracts

In looking to analyze IFRS 17, we focus on the Contractual Service Margin of the standard because this is the element which departs most fully from market price fair value prices. The standard only requires discounting of liabilities for long-term insurance contracts (greater than one year) and on initial recognition, the standard (paragraph 32) states:

¹⁸ See, Dimson Marsh, and Staunton, Annual Credit Suisse Yearbook, or the Barclays Equity/Gilt Annual Survey for the very long-run evidence on this.

¹⁹ Source: IASB Staff Paper, "Post-employment benefits: Recognition", October 2010.

²⁰ Source: Ibid.

Rationale and basis for conclusions

“On initial recognition, an entity shall measure a group of insurance contracts at the total of:

(a) the fulfilment cash flows, which comprise:

- (i) estimates of future cash flows (paragraphs 33– 35);
- (ii) an adjustment to reflect the time value of money and the financial risks related to the future cash flows, to the extent that the financial risks are not included in the estimates of the future cash flows (paragraph 36); and
- (iii) a risk adjustment for non-financial risk (paragraph 37).

(b) the contractual service margin, measured applying paragraphs 38– 39.”

This introduces discounting to reflect the time value of money. It also introduces the concept of a non-financial risk and paragraph 37 elaborates this as:

“Risk adjustment for non-financial risk (paragraphs B86– B92)

An entity shall adjust the estimate of the present value of the future cash flows to reflect the compensation that the entity requires for bearing the uncertainty about the amount and timing of the cash flows which arises from non-financial risk.”

The standard also has aspects that depart from the fair value concept as shown below (emphasis added).

As noted in paragraph BC17, the measurement model is not intended to measure the current exit value or fair value, which reflects the transfer of the liability to a market participant. Consequently, the risk adjustment for non-financial risk should be determined as the amount of compensation that the entity – not a market participant – would require.

With part of the rationale for this departure being one of decision usefulness for users of financial accounts:

“(b) an amount that would provide a high degree of certainty that the entity would be able to fulfil the contract. Although such an amount might be appropriate for some regulatory purposes, it is not compatible with the Board’s objective of providing information that will help users of financial statements make decisions about providing resources to the entity.”

Most fundamental in what is an expansive standard is the principle that it is the terms of the insurance contract that set the discount rate – that is, there is a correct discount rate, and this is endogenous to the contract and should not be modified due to exogenous factors – for example, changes in market yields (emphasis added):

Because the contractual service margin is measured at initial recognition of the group of insurance contracts, the Board decided that the interest rate used to accrete interest on the contractual service margin for insurance contracts without direct participation features should be locked in at initial recognition and not

Rationale and basis for conclusions

adjusted subsequently. The Board also decided, for the sake of simplicity, that the rate should be a rate applicable to nominal cash flows that do not vary based on asset returns. Locking in the rate is consistent with the determination of the contractual service margin on initial recognition and making no adjustments for changes in assumptions relating to financial risk.

To make the contractual service margin internally consistent, the Board decided that the adjustments for changes in estimates of future cash flows also need to be measured at the rate that applied on initial recognition. This leads to a difference between the change in the fulfilment cash flows and the adjustment to the contractual service margin – the difference between the change in the future cash flows measured at a current rate and the change in the future cash flows measured at the rate that had applied on initial recognition. That difference gives rise to a gain or loss that is included in profit or loss or other comprehensive income, depending on the accounting policy choice an entity makes for the presentation of insurance finance income or expenses.

IFRS 17 is, overall, a significant move away from IFRS 4. Given IFRS 17 comes into force from January 2023, our interviews focus on IFRS 4 as the standard in force. However, there are important aspects to IFRS 17 that are a significant shift in approach by the IASB. One, that there are meaningful departures from the fair value paradigm e.g., a move away from exit prices; and two, that the correct discount rate is a function of the terms of the contract and not changes in market yields.

Summary

Having reviewed the relevant literature and undertaken a detailed examination of the basis for conclusions, several key issues are worth highlighting. First is the dearth of research in academic accounting on discount rates. There are very few papers in general and what papers there are often have discount rates incorporated as part of a broader analysis. Given the significant amounts of research and debate in other fields that directly examine discount rates and their consequences, this is concerning.

Moreover, based on the analysis of the bases for conclusions, there are three key aspects that occur. First, is the inconsistency across standards as to how discounting should be done e.g., pensions vs insurance. Second, some of the economic rationales put forward have questionable logic. Third, that the IASB, in these specific cases, considered what information was likely to affect users but did not consider what effect it would have once the standard was in use.

Economic and financial consequences and the neutrality of standard setters are long-lived points of debate since Zeff (1978). However, given the economic and financial consequences of some of the standards e.g., IAS 19, a question exists on the rhetoric around this by standard setters, as one would be unlikely to acknowledge behavioural change resulting from a course of action, unless it was expected to happen.

Methodology

The methodology for the next phase of this research is a mixed-methods approach. It combines both qualitative interviews focusing on discount rates and their application in IFRS standards across a range of standards, and a quantitative survey focusing on IAS 19: Employee Benefits, and specifically on pensions.

Interviewees

The methodological approach to conduct the interviews is similar to a snowball sampling approach, which is useful for accessing hard-to-reach populations and uses referrals and networks from both ICAS and EFRAG to find interviewees. Target interviewees (users, preparers, auditors) are experts in a specialised field, who often work for large companies and are, as a result, hard to reach. The use of referrals is therefore the most appropriate way to access this group of experts. It is worth noting that this approach does not follow many of the assumptions supporting conventional notions of random selection and representativeness. However, that is a natural consequence of social systems, and to mitigate this as much as is practicable, a diverse group of interviewees was sought and has been achieved in this study.

Interview protocol

For the interviews, a semi-structured interview protocol was developed and can be found in Appendix 1. The benefit of a semi-structured approach is that it allows for an interview to evolve based on what is said during the interview rather than rigidly conforming to a script. As such, it allows for a much deeper investigation of complex issues than can be achieved through a large-scale survey. Indeed, given that exploring the application of, and challenges around, discounting in financial reports is inherently complex and occurs in a diverse range of accounting standards, it would be almost impossible to develop a broad survey instrument that would allow for a rich set of findings. Moreover, the time it would take to complete such a survey would inevitably mean that response rates would be too low for any meaningful insight.

Between March and May 2019, a total of 14 interviews were conducted by telephone or Skype and ranged in duration from around 20 to 45 mins. An interviewee's quote attribution is given as, for example, 'Auditor, Big 4 Accounting Company'. This approach enables the reader to understand something about the individual who has made the point – for example, their role and experience – while maintaining the anonymity of the individual as the quote is not directly attributable.

This method allows different views to be highlighted and the weight of prevailing views can be used to reach a general conclusion. Moreover, statements and positions put forward in earlier interviews can be used in future interviews to further triangulate insight.

Methodology

Quantitative survey

The full quantitative survey can be found in Appendix 2. The survey was sent out as a link through the weekly ICAS newsletter to its membership, an EFRAG news item, and through Investment and Pensions in Europe as a link in their weekly online publication. The survey went live in April 2019 and closed in May 2019. It generated over 150 responses, but once location and completion were established (respondents had to be from Europe, including Switzerland, and only completed surveys were used), the final sample totalled 101 respondents. This is sufficient for a statistically significant empirical analysis to be undertaken.

Semi-structured interviews

To understand some of the related issues with discounting in specific standards or across numerous standards, we have split our analysis into four key areas: accounting and regulatory discount rates; sensitivity; economic and financial consequences; and the objectives of discounting.

Accounting and regulatory discount rates

One of the most obvious features of the current accounting standards is the variation that exists across standards e.g., under IAS 19 the choice is an AA bond yield of sufficient duration, while for insurance under IFRS 4 this is based much more on assets and liability management. However, for both these standards there is also a secondary concern. Across several interviews, the difference between national regulation around pensions and insurance and what is required under international accounting standards was raised as an issue. For example, in the UK, pension funds are run based on the legal requirements of The Pensions Regulator (TPR),

“You know, if you look at any of the summary data TPR publishes, it publishes a gilts + survey.²¹ If you look across the market, then 95% of people use gilts + for TPs [Technical Provisions]. You can do different things in TPs, it’s not unlike the accounting standard, which is very much you should use a high-quality corporate bond discount rate, irrespective of what actually you invest in or what you – you know, how you believe the scheme will operate etc. And obviously no margins for prudence and all of the things that are in that.”

– Pensions Actuary, Big 4 Accounting Company

and for insurance, reserving is based on the pan-European regulation, Solvency II.

“So, I used to sit on our asset valuation committee because we had to look at the uncertainty and valuation of our assets from a regulatory perspective, so talk about the discount rate methodologies in that, particularly for the liquid assets. Potentially more important to us is there’s obviously two discount rate methodologies because we’ve got regulatory requirements. And you get into this world of it being quite difficult to manage two discount rates methodologies at the same time.

– Preparer, Large Insurance Company

As such, the approaches to discounting for accounting purposes and discounting for regulatory purposes are not the same.

Underpinning the regulatory regime in the UK for pensions, there is a parallel to the current accounting regime – i.e., comparability across schemes regardless of differences in investment strategy, and so on. However, as the previous quote suggests, accounting and regulatory standards do depart in quite significant ways. For example, in any regulatory technical provisions calculation there is a margin for prudence and crucially,

²¹ Gilts + is a method of estimating the discount rate starting out with the risk-free rate, called the gilt rate in the UK and adding some risk-premium to this number, and this is the + component of the discount rate.

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“I think the standard does a good job in comparing different entities for the same liability but that it does a very bad job of actually describing the risks that that pension scheme presents or to that business that’s sponsoring it.”

– Pensions Actuary, Big 4 Accounting Company

This different regulatory regime also extends beyond the UK. In Germany for example,

“...for local GAAP, the local GAAP in Germany, for example, you have to apply a given rate that’s published by the authorities and that interest rate has to be applied. It is a ten-year average interest rate, for example, for pensions. That is, of course, not market perfected because it is based on historic data and ten years’ average.”

– Executive, National Energy Company

While for insurance it also creates a tension and a potential disjoint between the underlying economics of the insurer and the financial statements of the company.

“I suppose you start with an economic view and then you sort of think – you’ve got to overlay onto that consequences of Solvency II, it’s quite prudent. So, you’ve got your capital requirements, which are quite long duration, so you say then, ‘how much do I want out of those as from a Solvency II perspective?’ And, ‘how can I do that in a way that matches the prudence in IFRS 4?’ I would strongly try and say that, you know, we try and match the economics. But there are these – it does create constraints.”

– Preparer, Large Insurance Company

The discount rate disclosed in the financial statements was also seen as having little information or meaning in the valuation of an insurance company.

“I try to figure out what kind of investment returns I think a life company can earn. I would say the reference portfolio approach, trying to figure out to what extent the company can really earn the guarantees they have on their books and just trying to find out, let’s say, what kind of interest rate they can earn over time with their risk profile, with their existing portfolio.”

– Insurance Analyst

“[Interviewer] ...does accounting regulation help to guide you in terms of how you go about selecting the discount rate that you use?”

“I think so far; I would say not. I think for insurance companies IFRS 17 will hopefully bring about some sort of clarity as to what the company should use. Most companies are still pretty open as to what kind of approach they use.”

– Insurance Analyst

Semi-structured interviews

Sensitivity

Where discount rates are applied in financial statements, then this is usually to long-lived liabilities – for example, insurance and pension liabilities. However, discount rates are a key variable for other long-lived obligations such as provisions for the decommissioning of nuclear power plants. It is uniformly the case that for such long liabilities, whether insurance and pensions or decommissioning, they are all extremely sensitive to small changes in the discount rate. We therefore investigated the extent to which this was a genuine issue for different stakeholders.

In looking at the asset retirement obligations such as the decommissioning of a nuclear plant, these liabilities often stretch out over 50 years and more.²² The retirement of long-lived assets is subject to a high degree of uncertainty. Moreover, the estimation here is greater than for financial liabilities due to the difficulty in estimating the actual cost of decommissioning, as well as the appropriate discount rate. However, for impairment this is less sensitive due to the factors that impact the impairment of an asset.

"...the impairment test is less sensitive due to the fact that that is only one component and you might have the counter effect from other parameters. So, with respect to provisions, it's rather sensitive because we have a lot of long-term obligations but then also for asset retirement obligations in the industry,... depending on the legislation of the countries, we have to recognise provisions for demolition of assets after the useful time of use. So, of course there are significant provisions. They are rather sensitive to changes in interest rates..."

...for example, we have a long-term obligation for the asset retirement of our nuclear power plant and there we have an interest rate sensitivity of roughly 30 million per 0.1 percentage. That is a published figure, actually."

– Executive, Energy Company

The sensitivity to the choice of discount rate is clearly significant in this context. Consequently, small changes in the discount rate can lead to a large amount of year-on-year volatility in the provisions being made. Interestingly, the approach to deal with this volatility is not to fundamentally change the model to mitigate the volatility, rather it is to set the model out and explain the variation.

"We are determining the methodology we would like to apply to derive the interest rate. Afterwards, the methodology, that is static, and we have to live with the effects up and down, and explain it to the market, but we are not in favour of adjusting the methodology each and every year, in order to mitigate the changes in it."

– Executive, National Energy Company

²² Here the interviewee stated that the average duration of their liabilities was 25 years, but that there were some very long-lived assets e.g., a nuclear power plant and that provisions had to be made for the demolition of the plant in roughly 50 years.

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For insurance, the sensitivity to the discount rate assumption was also a significant issue given the impact of a poor discount rate methodology for asset and liability management (ALM).

“Where you’ve got a very good ALM strategy, I mean, obviously you want to understand whether it’s working or not. But the volatility that you can create from a poor discount rate methodology is immense.”

– Preparer, Large Insurance Company

“So, the liability is really sensitive but we’re looking at the assets that back it, deducting things. So actually, the sensitivity to discount rating my assets whilst it matters to the presentation it can be reduced by, you know, the way that the discount rate is offset by the changes in the liability. Sometimes I’m less sensitive to the valuation uncertainty on the assets because it’s feeding back into the liability calculation, which is quite strange really.”

– Preparer, Large Insurance Company

Here, a key issue in the current approach to accounting for insurance emerges: the interplay between the valuation of the assets and the liabilities. While the sensitivity to the discount rate is described as ‘immense’, there are some naturally offsetting factors on the asset side that come into play, which dampens volatility. However, for pensions, this is not the case.

“All things equal, again, it’s [the discount rate] the most – it’s the critical assumption in terms of the assumption that you change that will have the most – you know, for a proportionate increase in discount rate it will always have the most significant impact”

“So, as a result you’ve got fixed assets, and you’ve got hundreds of millions of liabilities. Then small changes in the liabilities have a very big effect on the balance sheet in terms of a classic gearing effect of a pension scheme because changing that assumption doesn’t change your asset value [by the same amount].”

– Pensions Actuary, Big 4 Accounting Company

One final thing to note is the IFRS requirement for the use of pre- or post-tax discount rates differs according to each standard. While IAS 36, IAS 37, and IAS 19 contain either an explicit or implicit requirement to use pre-tax discount rates or cash flows, IFRS 13 allows either pre- or post-tax rates or cash flows depending on the purpose of the valuation. Recently, however, the IASB has identified as a matter for consideration in existing projects, removing the requirement to use pre-tax discount rates for the purpose of estimating the value in use of assets subject to impairment testing under IAS 36. This is a positive step forward, as using pre-tax rates within IAS 36 and IAS 37 is often seen as an unnecessarily onerous requirement – as shown by the comments of a technical IFRS standards expert we interviewed within a Big 4 company:

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“Well, there is one thing that relates to IAS 36, and IAS 37 as well, which is the discount rate should be based on pre-tax, should be a pre-tax discount rate, and valuers are consistently saying, “Well, a pre-tax discount rate doesn’t exist.” So usually, they do a post-tax calculation of the discount rate and, for disclosure purposes only, they disclose what the pre-tax discount rate is.”

Based on the analysis above, there are two main findings. First, there is often a disjoint between the regulatory regimes that are governing the behaviour of companies with respect to their liabilities and the accounting standards i.e., it is the regulatory regime that drives corporate decision-making, but current accounting standards do not reflect this activity. Second is the sensitivity of the present value of many liabilities to the choice of discount rate. There is therefore a clear tension as the underlying economics of the company are not being faithfully represented in the financial statements of the company, and for those users and preparers there is tension as they are managing multiple discounting regimes.

Economic and financial consequences

One of the main economic and financial consequences of discounting that was raised was the way in which it may have indirect effects on corporate behaviour. For example, in terms of the decision making in the company around dividends and also the impact that it could have on the ability of the company to re-finance.

“Well, for the companies which have big future liabilities or cash inflows, of course the discount rate has a significant effect because it makes a big difference to your present values of your liabilities and then you have the real effects [which] are the indirect ones. In terms of pensions, it can influence the amount you can distribute to investors in dividends, for instance... it can impact the valuation of your company and the price of your company, meaning your refinancing costs if you want to issue equity, so there’s all kinds of indirect real effects, even though it’s only bookkeeping.”

– Executive, National Energy Company

“But how the discount rate is going to have – effects, it’s going to have an effect on the financial statements, so you could say they have an indirect effect on the financing on the insurance, and it is, which is probably really going to be the case for those who are directly, I should say, borrowing money on the market which is a little bit the case for us but we have also financing that has been provided by our parent company.”

– Head of Accounting Standards, International Bank

Similarly, the way in which the pension liability is presented on the balance sheet of companies may create re-financing issues if the nature of the liability is not well understood. While this is not likely to be the case for large transactions as both sides of any deal will have significant expertise, this is likely to be the case for smaller transactions where the depth of expertise is lower.

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“Where there may be some impact would be for people who are looking at a set of accounts who don’t understand DB pension accounting. For example, if you are a lender and someone’s coming to you and then someone says, ‘well why’s your balance sheet such a mess?’ And they say, ‘oh it’s this pension scheme liability.’ It’s not exactly like any other liability. It’s not exactly a call, in terms of as long as you’re paying your contribution payments then you’re not initially at risk for an immediate cash call for the full thing or whatever else, it’s just on the balance sheet.”

– Pensions Actuary, Big 4 Accounting Company

Interestingly, one further issue that was raised was the disjoint between decisions around asset use by the management of the firm and what is reported in the financial statements. Management decisions may well be based on one set of assumptions, but this is not reflected in the accounts of the company. This again creates a disjoint between reported numbers and the underlying economic activity of the company, and crucially this is in the context of day-to-day corporate activity rather than in regulated situations e.g., insurance and pensions.

“I guess when an entity is trying to assess whether the entity or whether the asset is providing an appropriate return, then they are using different assumptions, including a discount rate, and that can drive behaviour by the preparer in terms of what is the best way to use this asset. Is it to acquire the asset, to dispose of the asset, or to keep the asset, or whatever? But I think it is independent from what the entity reports in its financial statements, even though we could see a logic of having a consistency between the assumptions that are being used for internal management purposes and for reporting purposes.”

– IFRS Technical Expert, Big 4 Company

Given the view that there is a disjoint between the underlying economics of the company and the reported numbers, the following quote from an analyst is one that is noteworthy. The view presented is that companies are prone to window dress in order to hide relevant information from analysts and investors. However, given some of the previous comments, there is the possibility that the accounting is obscuring the underlying economics of the company, not due to managerial choice, but because of the way in which standards are designed.

“As an analyst or investor, there tends to be, or the feeling is that much more often companies use accounting tools which, if they are there, to hide things in their asset quality, in their obligations and so on, to hide some kind of a downturn which, in the end, just continues and doesn’t go back.”

– Analyst

This idea about the standards and their approaches not proving a faithful representation is also apparent when looking at complex financial instruments. As these instruments are often marked-to-model as there is no deep and tradable market price, then the assumptions become key – i.e., the discount rate.

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“When you come to complex financial instruments that are valued on the basis of a model rather than on market price, you may have what is called a D1 profit (day one profit). So, the way the discount rate is estimated is important in determining the day one profit and it’s also important in determining whether it is observable or not because, as you know, if you have a day one profit based on a model where all parameters are observable, you may consider the profit, otherwise you need to use credit over the life of the instrument.”

– Technical Expert, Large International Accounting Company

Last, in looking at the values that would be placed on a company if it were to be valued for acquisition, the statement below again highlights the potentially lower level of decision-useful information contained in the accounts. Simply put, the numbers disclosed under IAS 19 are not seen as having any value in a corporate transaction. This is due to the ‘true’ value of the liability being determined by country-specific regulation. Given the objective of decision-useful information for investors, then the fact that these numbers cannot be used in company valuation is problematic to say the least.

“Like I say from a deals perspective no-one is using the number that’s shown in the IAS 19 number for anything. So, no-one has been put off buying or selling a business because of the IAS 19 deficit. Because, to be honest, a lot of cases these days, it shows a rosier picture because obviously it’s best estimate and it’s not what the actual – when the owners then have to sit around a table with the trustees and have a conversation there, having a conversation with the TPs and prudence and the regulators and guidance and annual funding statements, dividend matching and things.”

– Pensions Actuary, Big 4 Accounting Company

The objectives of discounting

The final section of the interview analysis considers the objectives of discounting, its purpose in financial statements, and what the IASB is trying to achieve. Across the different answers, there is a consistency that the IASB is trying to present some sort of decision-useful information with respect to some of the significant liabilities that some companies are faced with.

“An economic value of the liability of the asset that is relevant and consistent with the objectives of the entity. So, I think what is important is to understand the objectives of the accounting and of the measurement and to assess whether the definition of the discount rate is consistent with this objective and the way the entity will bear the liability or the asset considered.”

– Technical Expert, Large International Accounting Company

With specific reference to pensions, although there was some concern about this in relation to insurance too, a particular issue is one of comparability. However, as

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the comment below shows, and as other comments on this issue have stated, the actual usefulness of the numbers presented does not seem to be there.

“I think obviously at the moment it’s trying to depict comparability which I don’t think is, I don’t think it’s too hard to actually make two sets of accounts comparably. Even if they’re done on a very different basis because it’s done all the time in terms of if you’re doing a deal then you may have one company that’s funding on a very different set of TPs [Technical Provisions], but you can basically back it out.”

– Pensions Actuary, Big 4 Accounting Company

In extending this line of reasoning, the role of the discount rate as a simplifying factor was raised. However, the current approach is seen as being limited by the fact that it is a snapshot of the scheme’s position, rather than something that reflects the strategy of the fund and what this implies for future cash flows etc.

“For the purpose of the discount rate again yeah in terms of it’s a simplification, it’s a simplification of how do we – rather than putting out the full cash flows and all the liabilities and movements, can you put a single number on something and put a single number in the assets to show broadly where you are in terms of how much – if you’ve got a fund arranged, how much assets that you like to hold. For me personally I prefer discount rates that reflect what you’re broadly intending to do with your asset strategy and not just today but over the longer term, that may change.”

– Pensions Actuary, Big 4 Accounting Company

One striking argument for the approach to discounting in insurance that will come into effect in 2023 under IFRS 17 is the need for there to be a link between the assets and the liabilities for the purpose of valuation. The stated objective of the standard is the same, i.e., useful information on assets and liabilities. However, the need for an integrated approach is seen as essential as any breaking of this link would introduce noise and volatility that is not related to relevant risks. The consequence of breaking this link would be to impede the usefulness of the information reported in the account of the firm.

“I mean, obviously you’re trying to give reliable, useful information about the scale of your assets and liabilities, so the objective has to be to have useful information for decision making. I suppose a key thing I would want you to take away from an insurance perspective is that to get that sort of information you need to have a sort of recognition of your asset-liability matching in that calculation. Because I think the volatility that you can create from separating the assets and liability calculations undermines the usefulness of the information. Which is fundamentally why the IASB went to providing the option for a top-down discount rate in IFRS 17. I think that’s absolutely crucial. Because otherwise if you don’t have that link you can get market spreads in the assets that don’t relate to risks, creating massive volatility.”

– Preparer, Large Insurance Company

Empirical Survey: The case of IAS 19

The final stage of our analysis is based on our survey for IAS 19. In examining the potential issues with discounting in financial reports, it is important to understand the extent to which discount rates are understood, and the extent to which variation and perceived variation in a specific rate may occur. In addition, we have used the survey to understand what parts of financial reports are viewed as being the most important – for example, balance sheet vs income statement and also what aspects of the IASB Conceptual Framework are the most important, e.g., timeliness vs completeness. We have picked IAS 19 specifically as it is a broad standard, which covers many companies, unlike other standards that are more limited in coverage – that is, IFRS 4 only applies to insurance companies.²³

Descriptive statistics

Table 1 summarises descriptive statistics across all empirical questions for all respondents. The mean/median nominal discount rates used are 2.28%/2.00% with a range of 0%-8% and a central range (25th percentile to 75th percentile) of 1.8%-2.6%. This central range is quite close to the mean estimates for the higher and lower rates that respondents think that other practitioners are using in their countries: 1.85%-2.90% nominal. The range of discount rates used is therefore quite narrow across most of the sample and this fact is appreciated by the respondents when estimating the range of rates that others in their field are using. However, these rates lie below those used by governments for social discounting purposes (3.5% real by the UK government for horizons up to 30 years, for example). The duration of liabilities has a mean/median value of 26/21 years with a central range of 19-30 years. While the maximum reported duration is 100 years, again the range is relatively narrow.

In looking at how satisfied respondents are with the approach to discounting in the standard, the bottom (top) quartile of respondents expressed a score of 40 (80) out of 100 in terms of their satisfaction with IAS19, with a median response of 60 out of 100. While the high grade corporate bond yield is, by some distance, the most preferred discount rate, it still represented a minority view amongst all respondents.

When considering which part of the financial statements is most important (question 10), all four answers received the full range of responses. Nevertheless, there is evidence that those surveyed, on average, consider the income statement to be the most important and the notes the least important. Similarly, for the conceptual framework (question 11), each answer received the full range of responses. Faithful representation and relevance were, overall, considered the most important, while timeliness and verifiability were considered the least important.

²³ It is also worth acknowledging the limitations of examining one standard e.g., we cannot comment on all standards with discount rates. However, this is a natural trade-off in research such as this. The ability to generate a useful sample is a function of the ability to reach an adequate number of respondents and the complexity of the survey created.

Question		Min	Max	Mean	Median	Quantile 1	Quantile 3	Std. Dev.	Count
3	Rate used	0.00%	8.00%	2.28%	2.00%	1.80%	2.60%	1.07%	101
4_1	Range (High)	0.00%	10.00%	2.90%	2.40%	2.20%	3.10%	1.58%	101
4_2	Range (Low)	-1.30%	10.00%	1.85%	1.60%	1.30%	2.20%	1.41%	101
6_1	Duration	-	100.00	25.88	21.00	19.00	30.00	13.70	101
9a_1	Is IASB approach satisfactory?	-	100.00	58.22	60.00	40.00	80.00	23.51	101
10_1	Income statement	1.00	4.00	1.93	2.00	1.00	3.00	1.00	101
10_2	Balance sheet	1.00	4.00	2.52	2.00	2.00	3.00	0.98	101
10_3	Cash flow	1.00	4.00	2.66	3.00	2.00	4.00	1.12	101
10_4	Notes	1.00	4.00	2.88	3.00	2.00	4.00	1.15	101
11_1	Understandability	1.00	6.00	3.40	3.00	2.00	5.00	1.51	101
11_2	Relevance	1.00	6.00	3.05	3.00	2.00	4.00	1.47	101
11_3	Verifiability	1.00	6.00	3.86	4.00	2.00	5.00	1.73	101
11_4	Comparability	1.00	6.00	3.37	3.00	2.00	4.00	1.52	101
11_5	Timeliness	1.00	6.00	4.60	5.00	4.00	6.00	1.56	101
11_6	Faithful representation	1.00	6.00	2.72	2.00	1.00	4.00	1.81	101

Table 1: Summary statistics for the entire sample of EU survey respondents (N=101) for all empirical questions. For question 9a_1, the scale is 1 to 100 with 100 being “fully satisfied”. For questions 10, a score of 1 is “most important”, while 4 is “least important”. For questions 11, a score of 1 is “most important”, while 6 is “least important”.

Empirical Survey: The case of IAS 19

Cross-sectional groupings

Countries other than Germany, the Netherlands and the UK are, for the purpose of this analysis, gathered into a single “Other” category (31 respondents). It is particularly clear that UK respondents, on average, use higher discount rates than those from other countries. This may, at least in part, reflect the fact that UK Government bond yields were, at the time the survey was run, higher than those in Germany and the Netherlands. The duration of UK pensions’ liabilities is reported to be almost a decade longer on average than in the rest of the sample, and UK respondents are most satisfied with the IASB market-based approach to discounting (mean 66% vs. 51% for the Netherlands).

Panel B considers area of practice. The sample is relatively well divided between different groups, although preparers of accounts make up the largest sub-sample. Users of accounts employ much higher discount rates than other respondents, particularly actuaries. These two groups are also those least happy and most happy respectively with the IASB market-based approach, although the differences are not very great in absolute terms (53 vs 68). There are no obvious major differences between groups on duration of liabilities.

Regression analysis

To see whether the high discount rates used in the UK and by users of accounts might be related, we run a simple linear regression with dummy variables.

$$r_i = \alpha + \sum_{j=1}^7 \beta_j D_{ij} + \varepsilon_i$$

Where r_i is the discount rate used by respondent i , D_{ij} is a dummy variable that equals 1 (0) for respondent i if they meet (do not meet) the j^{th} characteristic, β_j is the regression coefficient and ε_i is the regression residual. The seven characteristics included in this regression are Germany, Netherlands, UK, Preparer, Auditor, User, and Actuary. The regression coefficients on the UK and User dummy variables are both positive and statistically significant at 5%. This suggests that the UK effect and user of accounts effect act independently from each other. No other dummy variable has a regression coefficient that even approaches standard levels of statistical significance.

Empirical Survey: The case of IAS 19

Panel C of **Table 2** shows that those who prefer a riskier instrument as their approach to discounting (expected return on assets, company-specific bond rate, beta of liabilities, cost of funds) on average use higher discount rates than those who use safer instruments (government or high-grade corporate bond yields). This result is precisely what we would expect and gives some grounds for confidence that the empirical responses are “sensible”. The use of high-grade corporate bonds is by far the most common single choice amongst our respondents.

Panel D of **Table 2** shows that the choice of real or nominal discounting has little influence on the average level of discount rate used, duration of liabilities or satisfaction with the IASB market-based approach. Nominal discounting is by far the most common choice amongst the sample.

	Count	Q3 Rate used	Q4_1 Rate range - High	Q4_2 Rate range - Low	Q6 Duration	Q9a_1 IASB satisfactory?
Panel A: Country of Work						
Germany	46	2.15	2.79	1.97	24	59
Netherlands	12	2.28	2.95	1.68	24	51
United Kingdom	12	3.42	3.93	2.51	35	66
Other	31	2.05	2.65	1.50	26	57
Panel B: Area of Practice						
Preparer of financial accounts	40	2.25	2.76	2.00	28	58
External auditor of financial accounts	21	2.00	2.44	1.70	24	59
User of financial accounts	19	3.05	4.30	1.90	27	53
Actuary	12	1.83	2.23	1.40	20	68
Other	9	2.08	2.57	2.10	25	56
Panel C: Approach to Discounting						
High grade corporate debt yields	44	2.15	2.54	1.59	25	63
Government bond yields	14	1.97	2.80	1.46	24	46
Other	11	2.26	2.60	1.75	34	44
I do not know	9	1.66	3.03	2.29	20	69
Expected return on the assets	8	2.68	3.28	2.20	22	59
Company specific bond yield	5	3.72	4.68	3.02	29	64
Cost of funds	5	2.94	4.24	2.30	25	66
Rate of return that reflects beta	4	2.70	2.70	2.68	41	58
Government bill yields	1	3.00	4.50	2.00	27	30
Panel D: Real or Nominal Discounting?						
Nominal	58	2.31	3.04	1.89	24	57
Real	23	2.21	2.80	1.80	26	61
I do not know	12	2.18	2.61	1.91	26	54
Does not matter	8	2.41	2.60	1.66	39	65
Total sample	101	2.28	2.90	1.85	26	58

Table 2: Mean responses to questions 3, 4, 6 and 9a_1 by country of work, area of practice, approach to discounting, and preference for real or nominal discounting. For question 9a_1, the scale is 1 to 100 with 100 being “fully satisfied”.

	Count	Q10_1 Income statement	Q10_2 Balance Sheet	Q10_3 Cash flow	Q10_4 Notes	Q11_1 Under standability	Q11_2 Relevance	Q11_3 Verifiability	Q11_4 Comparability	Q11_5 Timeliness	Q11_6 Faithful representation
Panel A: Country of Work											
Germany	46	1.74	2.72	2.72	2.83	3.17	3.07	3.76	3.26	5.09	2.65
Netherlands	12	1.58	1.83	3.33	3.25	3.50	2.33	4.75	3.17	4.67	2.58
United Kingdom	12	2.50	2.25	2.25	3.00	4.00	3.00	3.58	3.67	4.33	2.42
Other	31	2.13	2.61	2.48	2.77	3.45	3.32	3.77	3.48	3.97	3.00
Panel B: Area of Practice											
Preparer	40	1.80	2.50	2.75	2.95	3.30	3.23	3.53	3.30	4.70	2.95
Auditor	21	2.00	2.43	2.62	2.95	3.43	2.95	4.00	3.67	4.29	2.67
User	19	1.89	2.74	2.11	3.26	3.84	3.16	4.05	3.26	4.21	2.47
Actuary	12	2.08	2.17	3.25	2.50	2.92	3.17	4.33	3.25	5.08	2.25
Other	9	2.22	2.89	2.78	2.11	3.44	2.11	4.00	3.33	5.11	3.00
Total sample	101	1.93	2.52	2.66	2.88	3.40	3.05	3.86	3.37	4.60	2.72

Table 3: Mean response to questions 10 and 11 by country and by area of practice. For questions 10, a score of 1 is “most important”, while 4 is “least important”. For questions 11, a score of 1 is “most important”, while 6 is “least important”.

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Cross-sectional analysis

Panels A and B of **Table 3** show the responses to questions 10 and 11 by country of work and by area of practice. We can see that however the sample is divided, the income statement is seen as being a very important part of the accounts, and the notes probably the least important part. Similarly, for question 11, faithful representation and relevance are seen as being very important by all countries and areas of practice, while timeliness and verifiability are not.

Table 4 breaks down the respondents for each country by area of practice. This shows that users of accounts made up a much higher proportion of respondents from the UK compared to the sample overall. Actuaries made up 20% of the respondents from Germany, compared to 0% for Netherlands and the UK. The Dutch responses were evenly divided between preparers, auditors and “other”. Auditors were also heavily represented in “other” countries (not Germany, Netherlands or UK).

Area of Practice by Country	Germany	Netherlands	United Kingdom	Other	Total
Preparer	54%	33%	50%	16%	40%
Auditor	11%	33%	0%	39%	21%
User	13%	8%	42%	23%	19%
Actuary	20%	0%	0%	10%	12%
Other	2%	25%	8%	13%	9%

Table 4: Proportion of respondents, by country, in each area of practice (columns, not rows, sum to 100%).

Table 5 breaks down the respondents for each country (Panel A), and for each area of practice (Panel B), by their approach to discounting. Panel A shows that UK respondents are more likely to recommend using a risky instrument as the basis for their discount rate, again potentially explaining why average UK used rates are high (alongside the relatively high UK Gilts yields at the time the survey was run). The German respondents more heavily favour using high-grade corporate bonds than respondents from other countries. Preferences in the Netherlands are similar to those in “other” countries. Panel B shows that our actuarial respondents have a very strong preference for high-grade corporate bond yields, while users of accounts

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prefer either Government bond yields or returns based on risky instruments. The distinction here between actuaries and users is one of the starkest in this entire analysis. Auditors and preparers have quite similar views and these lie between the actuary/user extremes.

Panel A: By country	Germany	Netherlands	United Kingdom	Other	Total
High-grade corporate debt	57%	33%	25%	35%	44%
Government bond yields	7%	17%	17%	23%	14%
Other	4%	25%	25%	10%	11%
I do not know	13%	8%	0%	6%	9%
Based on assets held	7%	8%	0%	13%	8%
Company specific bond	7%	0%	8%	3%	5%
Cost of funds	4%	8%	17%	0%	5%
Beta of liabilities	0%	0%	8%	10%	4%
Government bill yield	2%	0%	0%	0%	1%

Panel B: By area of practice	Preparer	Auditor	User	Actuary	Other	Total
High grade corporate debt	48%	48%	11%	83%	33%	44%
Government bond yield	5%	10%	37%	8%	22%	14%
Other	15%	14%	5%	0%	11%	11%
I do not know	15%	5%	5%	8%	0%	9%
Based on assets held	3%	19%	16%	0%	0%	8%
Company specific bond	8%	0%	11%	0%	0%	5%
Cost of funds	5%	0%	5%	0%	22%	5%
Beta of liabilities	3%	5%	5%	0%	11%	4%
Government bill yield	0%	0%	5%	0%	0%	1%

Table 5: Approach to discounting by country and by area of practice (columns, not rows, sum to 100%).

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Table 6 breaks down the respondents for each country (Panel A), and for each area of practice (Panel B), by their preference for real or nominal discounting. While nominal discounting is the most preferred method across the sub-samples, this preference is particularly strong in the Netherlands and Germany and for Actuaries and “other” areas of practice. Users of accounts and those from “other” countries have the highest minority of respondents who prefer real discounting. Those in the UK, and preparers of accounts, are more likely than other groups to say that this choice does not matter, although in both cases this is a minority response.

Panel A: By country	Germany	Netherlands	United Kingdom	Other	Total
Nominal	67%	67%	42%	45%	57%
Real	17%	8%	25%	35%	23%
I do not know	15%	17%	8%	6%	12%
Does not matter	0%	8%	25%	13%	8%

Panel B: By area of practice	Preparer	Auditor	User	Actuary	Other	Total
Nominal	53%	57%	58%	67%	67%	57%
Real	18%	24%	37%	25%	11%	23%
I do not know	15%	10%	5%	8%	22%	12%
Does not matter	15%	10%	0%	0%	0%	8%

Table 6: Preference for real or nominal discounting by country and by area of practice.

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Table 7 provides the correlation coefficient between each of the quantitative responses. It is particularly notable that the use of a high discount rate (question 3) is likely to be positively associated with high estimates for the range of discount rates used by others in their countries (question 4). There are some other interesting characteristics in Table 7. Between answers 10_1 and 10_2 there are strongly negative correlations (income statement and balance sheet) with answers 10_3 and 10_4 (cash flow statement and notes). These correlations are much more negative than those between 10_1 and 10_2 (which is very slightly positive) or between 10_3 and 10_4. Similarly, answers 11_3 (verifiability) and 11_5 (timeliness) are highly negatively correlated with answers to question 11_6 (faithful representation).

	Q4_1	Q4_2	Q6	Q9	Q10_1	Q10_2	Q10_3	Q10_4	Q11_1	Q11_2	Q11_3	Q11_4	Q11_5	Q11_6
Q3	66%	46%	40%	3%	14%	-7%	-21%	15%	21%	1%	-7%	-6%	-11%	3%
Q4_1		52%	25%	-3%	5%	6%	-17%	7%	16%	-10%	2%	-1%	-9%	2%
Q4_2			24%	-1%	-1%	-4%	3%	2%	1%	-7%	0%	15%	-10%	1%
Q6				-3%	28%	-5%	-10%	-11%	10%	0%	-24%	15%	-9%	9%
Q9					5%	-34%	28%	-3%	3%	-11%	5%	10%	11%	-17%
Q10_1						8%	-45%	-50%	-19%	23%	-24%	-1%	-11%	31%
Q10_2							-48%	-45%	2%	2%	-9%	-3%	-8%	14%
Q10_3								-19%	-1%	-27%	28%	3%	19%	-23%
Q10_4									15%	4%	1%	1%	-2%	-17%
Q11_1										-33%	-21%	-6%	-16%	-18%
Q11_2											-29%	-24%	-15%	7%
Q11_3												-21%	5%	-41%
Q11_4													-27%	-17%
Q11_5														-43%

Table 7: Correlation coefficients between empirical responses.

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Cross-country differences

One aspect that the data shows is that the country of the respondent is important for the discount rate “most commonly used” and that the rate is similar to what others in the same country use. Given that the respondents apply IAS 19, one would expect this to show up. However, this also implies that there is potentially diversity in practice and application of the standard. If this is the case, the argument for comparability is undermined, as it is not possible to compare companies across countries.

To investigate this the use of a high discount rate (question 3) being positively associated with high estimates for the range of discount rates used by others in their country (question 4), we run a simple OLS regression of the form:

$$r_{max,i} = \alpha + \gamma r_i + \sum_{j=1}^7 \beta_j D_{ij} + \epsilon_i$$

Where $r_{max,i}$ is respondent i 's answer to Question 4a.²⁴ **Table 8** shows the coefficient is estimated to be positive and statistically significant (t-statistic close to 7). The coefficients on the dummy variables are not statistically significant at 5%, although the “User” coefficient, which is positive, is significant at 10%. This means that, after accounting for country and area of practice, a respondent's own used discount rate is a predictor of what they think the higher discount rate used by others in their country will be. This is not a result that would be predicted under a rational agent model. It may be an indicator of a form of herding, a desire not to stand out from the crowd.

Rate used	Coefficients	Standard Error	t Stat	P-value
Intercept	1.285	0.188	6.839	0.000
Duration	0.025	0.006	3.850	0.000
United Kingdom	0.792	0.276	2.870	0.005
User of Accounts	0.649	0.225	2.885	0.005
High Risk Instrument	0.659	0.209	3.149	0.002

Table 8: OLS Regression Results.

²⁴ All other variables previously defined.

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Similarly, a higher discount rate used is associated with a longer duration of pensions' liabilities. This appears to imply that those dealing with longer-duration liabilities use higher discount rates. To check this, we run a simple OLS regression with the discount rate used as the dependent variable:

$$r_i = \alpha + \theta \delta_i + \sum_{k=1}^3 \beta_k D_{ik} + v_i$$

Where δ_i is the duration of the liability for respondent i and there are now three dummy variables: United Kingdom, User of Accounts, and, if the approach to discounting involves the use of a risky instrument (here the dummy variable takes a value of one if the respondent selected any one of: expected return to assets, company specific bond yield, cost of funds, beta of liabilities). We find that all four coefficients are positive and statistically significant.

The adjusted R^2 of this regression is 37%. This compares to an R^2 of just 18% for the first regression reported, where the discount rate used was regressed against dummy variables representing countries and areas of practice. Therefore, if we wish to understand a respondent's choice of discount rate we need to consider, at a minimum, whether they work in the UK, whether they are a user of accounts, whether or not they base their discount rate on a (relatively) risk-free instrument, and the duration of the liabilities they are considering. Note that the use of higher discount rates for longer durations again contrasts with governmental discounting, where the discount rate used in many EU countries decreases with the maturity of the social costs and benefits under consideration.

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Analysis of alternative choices of discount rate

One key question that was asked in the survey was “Choose what you think is the best approach to selecting a discount rate for a pension liability for the purposes of accounting?” we next examine and discuss each of the options based on merit in the order of their popularity.

Method	N
High grade corporate debt yields	44
Government bond yields	14
Other	11
I do not know	9
Expected return on the assets held to meet the liability	8
Company specific bond yield	5
Cost of funds; i.e., the WACC of the company	5
Rate of return that reflects the beta of the liability	4
Government bill yields	1

Discounting based on the process of pension fund operations

In the first instance, when looking at the question of choice in discount rates, the notion of a choice itself arises from the apparent belief that there is no unique and correct discount rate for pension liabilities, or that if there is such a rate, the preparers do not, or perhaps cannot, know it. However, there is in fact such a rate, which is the contractual accrual rate (CAR), and it is knowable. It is the weighted average, over the membership and over time, of the rates embedded in the stock of awards to employees and is determined by the contributions made and the projections of the future values of these promises.

It is notable that pension liabilities are not, in general, negotiable by the beneficiary and may only be novated by the sponsor obligor under very limited circumstances, such as transferring to an authorised insurance company – for example, via buyout. Such transfer processes may and usually do, require the consent of the beneficiary. These restrictions also make the general concept of a market value for pension liabilities difficult as the cost of transferring the liability will, in almost every circumstance have a margin for risk added for the buyer of the liability.

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High grade corporate debt yields

Existing accounting standards specify the use of a high-grade corporate bond yield prevailing at the time of valuation, which makes this preponderance of this response perhaps unsurprising. This rate is applied to all liabilities regardless of the time or terms of their issuance or creation. It is a rate which may be relevant to the current year's awards, but is unlikely to be so for the stock of prior awards.

In addition, the rate is volatile and varies considerably from year to year. This variability is a concern as the rate is functioning as a measure, but it is not time consistent, a required attribute for comparability. Moreover, values arrived at by accrual will not equal those derived by discounting and should raise concerns with all other entries derived from it. Crucially, changes in the amounts recognised arising from this variability in the discount rate are not the same as changes arising from variation of the projected ultimate liability values. Finally, there is also a particular concern that quantitative easing has artificially depressed these rates, along with those of government bonds, leading to inflated values of pension liabilities. To this end, if a government issues bonds which are then primarily purchased by the central bank, in what sense is the resultant yield a market rate?

Government bond yields

Over the years, the suggestion that a government bond yield should be used has been supported by many misconceived arguments. In the world of theoretical finance, the discounting of future cash flows should utilise a 'risk-free' rate, but this rate does not exist in reality. Government bonds are, by convention, considered default-risk free, but they are not time-invariant and are not risk-free in price terms. They are usually less volatile than corporate or other bonds of similar term, and usually trade on lower yields. In addition to the absence of margins for default risk, there are differences in liquidity. This arises in part because of their use in open market monetary policy operations. Contrary to some beliefs, discounting an ultimate liability using a default-risk-free rate does not impart that property to the present value of that liability. It simply gives rise to the oddity that present value amounts are high and independent of the terms under which the liability was created.

Other

Among the "Other" suggestions written in was the use of the whole yield curve rather than a single rate and swap rates, as used in the Netherlands, which are, of course, based upon spot curves. It was also suggested that government bonds, with an adjustment for liquidity in the manner of Solvency II, might be used. The use of the spot curve is an instance of greater precision that fails to address the earlier primary criticisms. The adjustment of a government rate to encompass liquidity is also problematic since liquidity is a poorly understood concept, for which there is no generally accepted method of estimation. Moreover, any adjustment would be an estimation, and have no link to the terms of the pension awards accrued to date.

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It is not obvious what interpretation should be placed upon the amounts being returned by these bond-market-based discount rates. Clearly, they fail any plausible test of being ‘faithful’ values of DB pension liabilities and cannot be described as a ‘faithful representation’. In common with all alternatives to the contractual accrual rate, these rates are counterfactuals to the accrued amount of the contracted obligations.

Expected return on plan assets

The prevalence of the suggestion that the expected return on assets should be used as a discount rate is also not surprising.²⁴ However, the basis for conclusion of the IASB explicitly rejects this approach, noting that the amount of a liability is independent of the manner in which it is financed, with which we concur. The immediate further problem is that the method is subjective, the expected return is unobservable, and the method must rely upon judgements.

There are further issues concerning deficits between liability present values and assets held arising under this method. In the case of a stand-alone fund, there are no funds available to buy the required assets and indeed the expected return from assets available in markets may not then be achievable. A similar issue may exist when the expected return on scheme assets is higher than the company sponsor’s return on assets.

One of the attractions of this choice of discount rate is that it may be interpreted as capturing the sufficiency of the assets held for the purpose of discharging the ultimate liabilities, if the expected return is realised. However, the bond-based rates, discussed previously, are exogenous to liabilities; the expected return on assets is also exogenous to liabilities, but obviously endogenous to the scheme.

Company specific discount rate

One interpretation of the “company specific” discount rate is that this is driven by recognition of the endogenous nature of the problem, but it is endogenous to the specific liability contracts, not the company’s finances more generally. An illustration may prove helpful here. Let us suppose that a company has two secured zero-coupon bonds outstanding, each maturing on the same future date, say five years from now. Using an exogenous (bond) rate, these will each have the same present value today. The required collateral security would be the same for each. However, if one zero-coupon bond was issued five years ago at an internal rate of return of 10%, when the issue proceeds would have been 38.55%, and the second is a new issue placed at an internal rate of return of, say 5%, for issue proceeds of 78.35%, there

²⁵ See Accounting for Pensions, Clacher and Moizer for a detailed discussion of this issue.

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is a clear disparity. Using the rates endogenous to these contracts, the value of the older bond, and required collateral security, is 62.09% i.e., the discounted value of the 10% bond or equivalently accrued over 5 years, while for the current issue, it is 78.35% i.e., the issue price. These are incidentally the values which would be admitted as claims in insolvency proceedings and are time consistent in that the discounted present value is equal to the accrued value.

Weighted average cost of capital (WACC)

Based on the above example for a company specific rate, the weighted average cost of capital in this simple illustration is 7.21%. As reported above, several respondents suggested that the weighted average cost of capital (WACC) should be used as a discount rate. The problem with this as an approach is that this is the weighted average of all other capital from which the pension liabilities are absent.

Beta

Finally, four respondents suggested the use of Beta, which is an empirically derived measure. However, this is incomplete as a discount rate, requiring an estimate of expected market return for completeness as a discount rate. This is a measure of the riskiness of the company and in this effectively embeds the creditworthiness of the company. It is of course entirely inappropriate for a company, as a going-concern, to report own-credit impaired values of any liability. To highlight why this is the case, under a Beta-based approach, the less risky the company, the higher the value it will report for a liability. Conversely, the riskiest companies who arguably have the least ability to pay, would have much smaller liabilities.

Summary and conclusions

Within the current IFRS regime, discount rates are a key input to several areas of financial reporting. The aim of this research was to better understand how discount rates are applied in practice.

The first part of the report reviewed the relevant academic research on discount rates and its evolution. From the review of the economics literature, the main findings were that current approaches to discounting are based more on analytical appeal rather than empirical testing of the model, and significant discussions and debates as to the validity of the approach persist. In looking at the underpinning framework for the generation and application of discount rates from finance, this is based on notions of efficient markets and asset pricing models such as the Capital Asset Pricing Model (CAPM). As with the application of discount rates in economics, there are significant debates as to the validity of the underlying theoretical basis for this. In academic accounting research, while discount rates feature this is not the core of the research, rather it is something that is mentioned. For example, despite the volume of research examining pension accounting, it does not debate and discuss how discounting should be applied, nor does it engage with debates as to what a discount rate for a specific reporting objective 'should be'.

The next part of the analysis examined the basis for conclusions across IFRS 4, IFRS 9, IAS 19, and IFRS 17. The analysis showed that the conclusions across standards are often inconsistent. Moreover, some of the economic arguments used are not sound – for example, the predictability of future rates of interest based on current rates. Some of the rationale for the resultant standards is therefore based on debatable evidence. However, there have been significant shifts in the approach to discounting under IFRS 17, where the fair value paradigm of valuation for exit prices is not used in all situations. More fundamental is the acknowledgement that the discount rate for the CSM in insurance contracts is a function of the terms of the contract as opposed to something that changes year-on-year with changing market yields.

The third part of our analysis was a programme of interviews across expert stakeholder groups e.g., preparers/users etc. Across the interviews there was an acknowledgement of a disjoint in some cases between the numbers presented in financial statements and the regulatory reporting required by companies. The consequence is that the underlying economic activities of the company are not properly reflected in financial statements. Another consistent issue across all

Summary and conclusions

standards concerned the sensitivity of reported values to changes in the discount rate. However, the behavioural response to this measurement-induced volatility differed depending on what was being affected. For pensions, pension funds have shifted into matching assets e.g., from equities to bonds. While for long-lived liabilities such as the cost of decommissioning, the year-on-year volatility is reported and explained in the company accounts rather than by changing the underlying model to smooth out the volatility.

Last, the idea that accounting numbers change behaviour by creating the economic reality of a company was accepted by the interviewees, but the economic consequence was largely restricted to investors. The idea that economic consequences could extend to wider stakeholders was not something that interviewees had considered.

The final part of our analysis was a survey that largely focused on IAS 19. The bottom (top) quartile of respondents expressed a score of 40 (80) out of 100 in terms of their satisfaction with IAS19, with a median response of 60 out of 100. While the high grade corporate bond yield is, by some distance, the most preferred discount rate, it still represented a minority view amongst all respondents. In addition, the results highlighted significant cross-country variation in discount rates and duration of liabilities; with higher discount rates associated with a longer duration of pension liability.

Respondents also considered the income statement to be the most important part of a set of financial accounts. There is potentially a tension here between what market actors think is important and arguably what the IASB focuses on when setting standards. Last, faithful representation, followed by relevance, were considered to be the most important parts of the Conceptual Framework. This is again interesting, considering some of the findings of the interviews, where the regulatory regime in which a company operates drives its economic activity, but this is not reflected in accounting disclosures of the company.

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Policy recommendations

Based on our analysis there are several recommendations.

First, there needs to be a detailed programme of work that academic accountants engage with on issues of discounting, and what is the 'correct' discount rate for a specific situation. It is concerning that approaches are being imported from other academic disciplines in a way that suggests these methods are accepted and without debate and controversy. To enable this, it may need a coalition of the willing to engage with academic funding bodies to create the impetus for the research to occur.

Second, while the IASB has not included discount rates in its work plan resulting from its Third Agenda Consultation, there is the option of other projects to be included for "*...any time-sensitive projects that may arise after this agenda consultation*".²⁶ With interest rates increasing sharply in a number of countries around the world as central banks grapple with significant inflationary pressures, the impact that this will have on discount rates will be considerable. If the issue of discount rates is not revisited, then this has economic consequences, as current standards are not seen as fully reflecting the substantive economic activity of many companies. Moreover, given the evolution and improvements that we have seen in the application of discount rates in accounting for insurance contracts under IFRS 17, with respect to the CSM, it remains an open question as to why insurance reporting could be improved upon to better reflect the underlying fundamentals, but other standards cannot.

Last, there needs to be a principles-led best practice guide to help preparers. Current standards are seen as inconsistent with approaches to setting discount rates varying widely across standards. If current standards faithfully represent the underlying activities of a company, then it is incumbent on the IASB to support preparers in achieving this.

²⁶ <https://www.ifrs.org/content/dam/ifrs/project/third-agenda-consultation/thirdagenda-feedbackstatement-july2022.pdf>

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Appendix 1: Interview protocol

Control Questions

1. Name

2. Organization

3a. Practice area(s) – industry

3b. Current role – preparer or user

4. Do you consent to being interviewed and the answers you give being used as part of this research? All answers will be anonymized but will have a high-level attribution e.g., auditor, big 4 firm, Germany. Y N

How do discount rates feature in your role/job?

5. Do you apply/appraise different discount rates for different valuations in financial accounts? Y N

6a. If yes, why and does this matter?

6b. If no, why and does this matter?

7. Why and how do you choose/appraise that/those discount rate(s)?

8a. (Preparers only) Does accounting regulation i.e., IFRS impact this choice and if so, by how much?

8b. (Auditors/Reviewers only) Does accounting regulation guide your assessment of discount rates used and if so, by how much?

9. For each of the different valuations, how sensitive are the various liabilities to the choice of the discount rate?

Appendix 2: Survey instrument

10a. Do you think the choice of the discount rates has any economic and financial consequences? If so, what consequences/If not, why not?

10b. Are there any operational difficulties to determine/appraise the rate?

What do you think should be done?

11. What are the objectives of discounting in accounting? What should it try to depict/achieve?

11a. What other approaches, outside of those prescribed by the IASB, to selecting discount rates are you aware of?

11b. Do these other approaches have any strengths or weaknesses?

12. What do you think the conceptual/intellectual basis for the current approach to discounting as prescribed by the IASB across standards is based on, or is there no 'general' approach to this?

13. Do you think the conceptual/intellectual basis for other approaches to discounting are valid?

14. If IFRS did not exist, how would you select/set discount rates?

Within the current IFRS regime, discount rates are a key input to a number of areas of financial accounting. The Institute of Chartered Accountants of Scotland (ICAS) and the European Financial Reporting Advisory Group (EFRAG), are therefore undertaking a programme of research to better understand how discount rates are applied in practice.

Appendix 2: Survey instrument

As part of this research programme, we are undertaking a survey of experts to generate data on discount rates as applied to pension liabilities, as well as alternative methodologies, and satisfaction with the current regime. Specifically, we are interested in the measurement of net liabilities for accounting purposes.

The survey is anonymous and there is no right answer. Instead, the survey will be analysing ranges and distributions across many respondents.

The survey will take less than 5 minutes to complete.

We would like to thank you for your time in advance.

Control Questions

1. Country of working

2. Main area of practice/background (please select only one)

Preparer

User

Auditor

Other

This will allow respondents to be analysed across practice areas;

Initial Questions

3. As of the 31st December 2018, quantify the nominal discount rate that you most commonly used for pension accounting valuations?

Answers in percentage %

4. As of 31st December 2018, what range of nominal discount rates do you think that other practitioners/experts in your country were using for pension accounting valuations?

High%

Low%

Questions on approaches to discounting

Imagine that you are asked for advice by an accounting regulator that needs to determine the appropriate discount rate for calculating the present value of various liabilities that must be accounted for and recognised in financial accounts.

For its calculations, the organization needs to select an appropriate methodology to choose the discount rate and seeks your advice on which methods to choose for different liabilities.

Appendix 2: Survey instrument

5. Choose what you think is the best approach to selecting a discount rate for a pension liability?

Cost of funds; i.e., the WACC of the firm

Government bond yields

Government bill yields

High grade corporate debt yields

Company specific bond yield

Expected return on the assets held to meet the liability

Rate of return that reflects the beta of the liability

Non-market rate; e.g., the Ramsey Rule

Other, please specify

6. How long do you estimate the duration of a pension liability to be on average if a scheme is open to new members and further accrual?

Answer in years

7. If there are no bonds of suitable maturity to match the duration of pension liability being valued, is this problematic?

Y N I do not know

If you answered yes how do you resolve this?

If you answered no how do you resolve this?

8. Do you think discounting should be done on a real or nominal basis?

Real

Nominal

Does not matter

I do not know

Appendix 2: Survey instrument

9. How appropriate do you feel the current market-based approach to discounting and valuation as prescribed by the IASB is? (on a scale of 0-100, where 0 is very unsatisfactory, and 100 is very satisfactory, please tick scale below)

very unsatisfactory

very satisfactory

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10. Rank from 1 to 4 what you consider the most important parts of the financial statements to be, with 1 being most important and 4 being the least important?

Income statement

Balance sheet

Cash flow

Notes

11. Rank from 1-5, with respect to their relative importance, the conceptual framework components, with 1 being most important and 5 being the least important?

Understandability

Relevance

Verifiability

Completeness

Timeliness

12. Current approaches to accounting for many standards, including some that have discounting in them, are based on fair value accounting. How appropriate do you think this is for accounting? (on a scale of 0-100, where 0 is very unsatisfactory, and 100 is very satisfactory, please tick scale below)

very unsatisfactory

very satisfactory



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