

Crediting rates versus unit pricing: issues for super funds

With the rapid growth in superannuation assets and the increasing emphasis on member choice there is a growing need for increased equity in the valuations of their holdings. Many issues need to be considered about whether a crediting rate or unit pricing approach should be adopted.¹



JULES GRIBBLE PhD FSA, FCIA, FIAA is Director, ASKIT Consulting Pty Ltd. Jules has over 25 years' professional and actuarial experience in financial services and has been a Senior Fellow in the Centre for Actuarial Studies, Department of Economics at the University of Melbourne since 2000. He has also been Academic Coordinator for the Australian APEC Study Centre's 'Managing Regulatory Change in Life Insurance and Pensions' programs which have trained over 350 regulators from over 15 countries since 1999. Email: Jules_Gribble@askit.com.au

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IN RECENT YEARS MAJOR PROBLEMS have been publicly reported relating to errors that have occurred in a unit pricing environment. Costs of tens or hundreds of millions of dollars, both in Australia and overseas have been incurred. A figure widely quoted is that as of January 2007, there has been over \$750 million dollars paid to investors in compensation for unit pricing errors in Australia. In contrast, value attribution using a crediting rate approach has had few reported errors. This should not be taken to suggest that such errors do not and have not occurred (as they have), rather that they have not been so publicly reported.

Conceptually, both crediting rate and unit pricing approaches are straightforward. In a business environment, however, the reality of the implementation involves significant operational risks. With the growth of compulsory superannuation and with assets in excess of \$1 trillion in the system (in excess of the national GDP), the importance of ensuring the integrity and robustness of this system for the ultimate benefit of the individual

superannuation fund members is increasing. In some cases ongoing improvements have emanated from the industry, however, the regulators have also seen a need to drive significant changes.

Historically, crediting rate regimes have been common, and many industry superannuation funds still use this approach. There is an increasing emphasis on member choice and individual member responsibility for the management of their increasingly significant defined contribution superannuation funds. With the increased emphasis on facilitating switches between investment options and portability between funds, there is a need for increased equity in the ongoing valuations of members' holdings. This drives a need for improved governance, transparency and accountability from the superannuation funds.

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is whether members' interests are properly served. Many issues need to be considered in this context, including:

- Increasing market pressure for more frequent value allocation and attribution increases the pressures on crediting rate regimes. While there may be varying views as to whether this is in the interests of super fund members, it seems likely that the shortening of timeframes for processing will continue.
- The volume of money and data that is flowing into and through the system is increasing.
- Increasingly complex investment options being considered, both in the wholesale and retail arenas.
- Unit prices are more tightly and explicitly tied to movements in underlying assets at the end of each unit pricing period than crediting rates. A consequence of this is that the matching of members' liabilities and their supporting assets may be more tightly monitored and managed.
- The standards of governance, expertise and transparency required will continue to rise.

There will be situations when crediting rate regimes will no doubt continue to be used and considered to be appropriate. However, the higher levels of governance, explicit accountability and transparency unit pricing approaches required suggest the prevalence of unit pricing will continue to increase.

Context

Recently, there has been increased regulatory interest in the area of value attribution, among others. In particular, in November 2005, APRA and ASIC jointly published 'Unit Pricing: Guide to Good Practice' (the Guide). See www.apra.gov.au or www.asic.gov.au. This Guide, which focuses on the need for good governance and appropriate risk management, is not isolated, as over the past few years there has been considerable regulatory guidance and emphasis on improved governance and risk, including operational risk management. Industry bodies have also subsequently reviewed their guidance materials as well.

The Guide is not 'carved in stone' and regulatory views should be expected to evolve over time, although, to date, the guide is considered to have worked well. For

those seeking further detailed guidance from the regulators, it might be more useful to understand the principles involved (instead of focusing on printed detail), ensure their policies are set, and engage in constructive discussion. The responsibility for setting and implementing policy lies with the product provider, ultimately at the most senior level. Where functions are outsourced, the responsibility for the policy, and for ensuring it is properly implemented, remains with the provider.

The Guide is specifically applicable to both unit pricing and crediting rate environments, and this has been emphasised recently by APRA (*APRA Insights*, Issue 1, 2007) under the heading of crediting rates:

Operational risk is a major inherent risk for superannuation funds because of their large volume of transactions and the need to keep accurate records of entitlements over long periods of time. Errors in one financial year can easily carry across to subsequent financial years.

APRA does not have a preference for unitisation or the use of crediting rates, since trustees that use crediting rates to distribute investment returns face substantively the same issues and risks as those using unit prices. APRA supervisors will look at the reasonableness of crediting rate and unitisation methodologies adopted by trustees and how well the policies work where investment choice, fund choice and portability of benefits give rise to ad hoc transactions, some involving large amounts of money.

The importance of the management of the operational risks involved in unit pricing activities has been recognised by APRA, who have indicated that the approach taken by institutions to the management of their unit pricing and crediting rates may be considered to be something of a 'lightning rod' for the institutions' overall management of operational risk.

Unitisation does not cause errors

It is important to keep value attribution in perspective. In particular, unitisation does not cause many errors. In some quarters the impression is that using unitisation to attribute value to investors is itself the cause of errors ('unitisation is a risky process ...'). This is clearly not the case, as what unitisation does is highlight, and make explicit, errors in processes that are already there.

Errors in, for example, taxation policy or its application are not due to unitisation, they are due to poor tax management. Fee errors are not a consequence of unitisation. Unitisation may, however, highlight certain issues and hence result in their correction. In contrast, crediting rate regime errors certainly occur, but may have been less frequently acknowledged or stringently addressed to date, perhaps both by regulators and entities. The types of errors seen in crediting rate regimes contradict any assertions that crediting rates are simple or easy to implement, despite the comfort that may be derived from familiarity.

What is the problem?

In principle, the determination of value attribution parameters is conceptually straightforward. In practice, the calculation of the unit prices or crediting rates is the culmination of several processes. A chain is only as strong as its weakest link, so these determinations are only as reliable as the weakest link in the process chain. For example, even if the complex work is well done, and unit prices are correctly computed, this will be invalidated if the application of the unit prices through their input into a member administration system is compromised. A member does not care how an error occurred, simply that the value attributed is incorrect.

The gulf between setting expectations and their implementation and assessment can be wide. We have called this gulf between theory and implementation 'Application Risk': the risk of 'doing it wrong' in contrast with 'knowing what to do'. Particularly in the context of the management of the operational risks associated with value attribution, theory may be 5 per cent of the game while implementation is the remaining 95 per cent (think of 'genius is 5 per cent inspiration and 95 per cent perspiration'). Application Risk also explains the ongoing litany of major spreadsheet errors.

An advantage of taking a unitised approach is having accurate values at regular intervals (in particular, at the end of each unit pricing period), but this comes at the cost of managing the resulting time and volume constraints.

The calculation of unit prices is merely the division of net asset value by the number of units on issue. Value attribution comes through the change in the unit prices.

However, this apparent simplicity and precision belies the complexity of determining the inputs for this calculation. The time constraints imposed by the unit pricing period (often daily prices are required) can impose significant pressure on completing the full process chain. This can be compounded by the need to produce many, perhaps hundreds, of unit prices. For example, the question of how late investment valuation data is to be treated needs to be addressed. From a practical business perspective the unit pricing process is a treadmill, which is only stopped in exceptional circumstances. Often staff can be more concerned with 'fire-fighting' the out-workings of issues than in resolving the underlying problems (addressing symptoms rather than diseases).

The calculation of crediting rates is typically a two-stage process and, for ongoing members, effectively a retrospective process. It is more complex, from an

operational perspective, than simply determining rates. Value attribution comes through the allocation of more dollars to the member's account when the interest is attributed. Attribution often only takes place annually, after a lot of work has been completed in the standard review process, in the lead-up to the provision of statements to members. Statements are provided well after the end of the period over which interest is being attributed. This is in contrast to a unit pricing environment where value is attributed at the end of each unit pricing period.

To permit members to transact and, in particular, to withdraw monies (either switches or redemptions), crediting rate regimes determine 'interim' interest rates which can be used for periods for which 'final' rates are not available. The processes by which prospective interim rates and also retrospective final rates are determined can be subject to significant levels of judgement. When reserves, for example smoothing reserves, are involved, the accuracy with which rates follow the actual underlying investment performance may vary. While results may be considered reasonable on a longer term basis there can be important issues to consider in managing shorter term variations and allocation of earnings to members.

An advantage of taking a unitised approach is having accurate values at regular intervals (in particular, at the end of each unit pricing period), but this comes at the cost of managing the resulting time and volume constraints. Through the mechanism of fully reflecting the variance in the unit prices and the use of forward unit pricing, the equity of the allocation of value changes to individual members can be improved.

Underlying principles

Trustees and managers need frameworks to assess their value attribution and a set of principles to give them a framework to work within. Management based on these principles also needs to be set within an appropriate overarching corporate governance framework. The following principles apply to the value attribution process, be it either a crediting rate or unit pricing approach, and apply in both a 'business as usual' context and in error compensation exercises.

■ **Principle 1: *Proper Financial Position*.** Investors receive the appropriate value for their investments at all times. Considering issues and errors, the need is to return investors (having regard to the materiality of any errors) to materially the same financial position as they would have been in had the error not occurred. Practical constraints and considerations need to be recognised. Investors include active and exited investors.

In the unit pricing context the focus should be on value as opposed to either number of units or unit prices separately. This is obvious since value is the product of units and unit prices.

■ **Principle 2: *Equity*.** The methodology delivers equitable value attribution to all investors.

In the context of evolving practices and industry standards, it is important to ensure that judgements are made in the context of the environment at the time of the error, and not seek to impose current standards on historic situations.

Considering errors, applying equity considerations should take into account the nature of the errors, the data available and the practicalities of the situation. Equity should also be maintained between active and exited investors. In practice, equity can be difficult to assess and apply.

- **Principle 3: *Reflect Pricing Basis*.** The pricing basis, as disclosed in the relevant PDSs and any other relevant governance requirements, is adhered to. All relevant constraints and governance requirements applicable by, or on behalf of, the product provider should be met at all times.

Considering errors, the compensation outcomes must be consistent with the pricing and administrative bases the investor would have expected to have been employed at the time the error occurred. Put another way, the basis for compensation is 'to redo the processes as they would have been done at the time with identified errors corrected'. Historic processes, except for those processes or data items identified as being in error (and being corrected), remain accepted. In the context of evolving practices and industry standards, it is important to ensure that judgements are made in the context of the environment at the time of the error, and not seek to impose current standards on historic situations.

- **Principle 4: *Consistency with External Industry and Regulatory Guidance*.** Value attribution calculations should be carried out in accordance with relevant industry and regulatory standards and guidelines.

Considering errors, assessment should be against guidance in effect at the time of the error. As with Principle 3, we note the importance of not applying current views in an historical context. Unless applied on an industry-wide basis, applying current views may imply different standards in compensation exercises than would have applied to other investors not subject to a compensation exercise.

- **Principle 5: *Best Estimate at the Time*.** This principle explicitly underlies much discussion in the APRA/ASIC guidance: 'The calculation of each element of the unit price should be the best estimate calculation at the time'. We emphasise the importance of the documentation of such best estimate processes so

that adherence to them can be demonstrated and their management clearly followed.

This principle is equally applicable in a compensation context. When reviewing past methodology and its implementation, the issue is not one of whether a 'best estimate' was made but rather of whether the estimate historically made can be shown to be inappropriate, either by methodology or implementation, and so is unable to be accepted as reasonable. As with the above principles, breaching this potentially results in attempting to apply 'wisdom of hindsight' to the compensation process. This raises the spectre of implying that all ongoing business unit pricing processes which cannot meet a 'wisdom of hindsight' level of accuracy test some time in the future will potentially become transformed into errors.

- **Principle 6: *Simplicity and Robustness*.** The value attribution process needs to be robust and capable of withstanding stressful conditions, such as significant short-term market fluctuations.

Considering errors, the compensation methodology should be as simple as possible while retaining the necessary degree of accuracy and thoroughness to ensure equity. The methodology should identify the relevant issues, while ignoring the immaterial issues. In practice, it is also essential that a compensation methodology can be implemented and be demonstrated to have been implemented.

- **Principle 7: *Group Long-term Interest of Fund*.** Investors elect to join a group by joining the fund. They expect advantages from the group membership, such as better performance and access to more investment options. However, a consequence of group membership may be, in some particular cases, that individuals may not be treated identically when compared with their being independent and individual investors. By investing in a collective investment an individual places an intermediary (the fund) between themselves and the investments. The fund then invests on behalf not only of a given individual, but the collective of all the individuals then in the fund. Consequently it may not always be appropriate to directly compare how an individual may behave or react with how the fund behaves or reacts. To use a sporting analogy, we can make a distinction between a team of champions and a champion team. The champion team achieves better results, but typically each player in the team curtails some activities (and takes on specific roles) for the 'greater good' of the team. However, as individuals, those players may not have otherwise chosen their team roles. This 'group' principle is fundamental to the existence of collective investment products.

Considering errors, the long-term and ongoing interests of the fund need be considered. It is inequitable to seek to impose a compensation process which in the longer run leads to current or future investors of the fund being disadvantaged.

- Principle 8: *Independence of Investor Intentions*. The assumed behaviour of investors needs to reflect their independence from other members in the group of investors. Offsetting and averaging arguments reflect summaries of aggregate behaviour from the perspective of the fund and do not necessarily reflect the perspective of the individual members of the group. The fundamental conceptual flaw of historic unit pricing illustrates the need for this principle.
- Principle 9: *Independent Reviews*. Product providers need demonstrable evidence as to the validity of the inputs and outputs of value attribution processes (together with all the steps in between) to be able to provide assurance to stakeholders of the appropriateness of the value changes attributed to investors. Regulators specifically endorse this principle. Considering errors, the importance of independent expert review is heightened.
- Principle 10: *Primacy of Investor Interests*. There are typically various stakeholders involved in providing an investment product and they may have differing perspectives on issues. This principle reinforces the equity principle by clarifying that the investor is the primary stakeholder. Considering errors, differing parties, such as administrators, trustees and others, may have differing interests that need to be recognised, managed and balanced but the primacy of the interests of the investor always remains.

Some additional principles generally apply to compensation exercises, although each such exercise needs to be considered on its merits. We leave aside the sometimes contentious question of what constitutes a compensatable error.

- Principle 11: *Inclusion of All Identified Issues*. To restore an investor's financial position, all errors identified during an investigation should be addressed in the compensation, whether or not individually they may be judged to be compensatable. Errors may arise from methodology, parameters, data or implementation issues.
- Principle 12: *Compensation at Transaction Level*. The basic building block for determining compensation is to determine the impact of the compensatable error for each transaction. A transaction is the lowest level of data on which the compensation calculations can be based. So, once adequate data integrity is established, the corrected reprocessing of transactions provides an accurate and focused approach. It minimises the risk of generating compensation where it may not be due.
- Principle 13: *Dollar Value of Historic Transactions*. The dollar values of investor transactions are generally established historical facts that should be preserved (barring specifically identified errors). This is important in assuring adequacy and integrity of data for the purposes of compensation. It is also important as making adjustments to transactions requires assumptions that are inherently judgemental and so can be subject to dispute.

Equity

The concept of 'equity' is intuitively focused on the idea of fairness. The key to this is ensuring consistent treatment of members and groups of members both at a given time and over time.

Assessments of equity need to reflect a number of things:

- *Viability*: There is a primary need to maintain the viability (solvency) of a fund.
- *External constraints*: Specific rules, such as legislative and regulatory requirements, trust deeds or other governing documents must be considered.
- *Consistency*: In some cases these constraints may not be entirely consistent, and so compromises need be made.
- *Practicality*: Decisions made must be practical and able to be effectively implemented, cost effective in the broader context, and understandable.
- *Avoid Unintended Consequences*: The application of equity argument may require considerable knowledge and appreciation of possible consequences to ensure unintended consequences are minimised.
- *Materiality*: As the impact of an event lessens it may become appropriate to take a more pragmatic and flexible approach, and if an issue is deemed immaterial then no action may be appropriate.
- *Costs*: The benefits of changes should be expected to exceed the costs of implementation, especially when the fund bears costs.

Applying equity arguments can require considerable judgement and varying opinions can be held, so this is not necessarily an easy or precise exercise.

Some applications

Noise in the System: Rounding of unit prices

Assume an investor invests \$1,000,000 and the trust deed specifies that unit prices be rounded to the nearest cent. The exact buy price has been computed to slightly above 1.25, and so is rounded up to 1.26.

Applying a buy price of 1.26 implies the creation of approximately 793,651 units. Applying a buy price of 1.25 implies the creation of 800,000 units. There is an 80-basis-point difference in the number of units created.

While this may be considered an extreme example, there exist trust deeds that round unit prices to the nearest cent.

As an aside, this example also highlights the more general point that specifying the accuracy of unit prices (or unit held for that matter) in terms of the number of digits required after a decimal point is fundamentally flawed.

Buy/Sell Spreads

The justification of these spreads is that entering or exiting investors 'pay their own way' in terms of bearing the costs of investment or divestment. Note that this presumes the independence of investors.

If no buy or sell spreads are taken, then early investors and late exits bear a higher proportion of entering and exiting costs than late entrants and early exits. In principle, this is inequitable.

Reduced spreads may be used when it is believed a fund is growing or contracting. Sometimes both buy and sell spreads are reduced, otherwise one of the buy or sell spreads may be set to zero. These approaches inherently assume knowledge of collective investor behaviour, violating the independence of investor assumption. They also assume average behaviour over a longer period can be applied at a micro level. In practice, these assumptions may not be valid and so the conclusions made may not follow. In particular, zeroing either the buy or sell spread to cater for netting of deposits against redemptions may provide unintended benefits for particular groups of investors on an intermittent basis.

Buy and sell spreads need to be considered in the broader context of materiality. If the buy and sell spreads are very small, they may not be material in the context of other noise in the unit pricing process. In this case, the practical argument of simplicity may justify the removal of both buy and sell spreads.

In any event, it is generally accepted that the majority of investment gains (sometimes cited as 90 per cent of the total) comes from the asset selection and not from investment timing. The discussion of buy and sell spreads relates to asset timing, and so may not be of long-term significance for long-term investors.

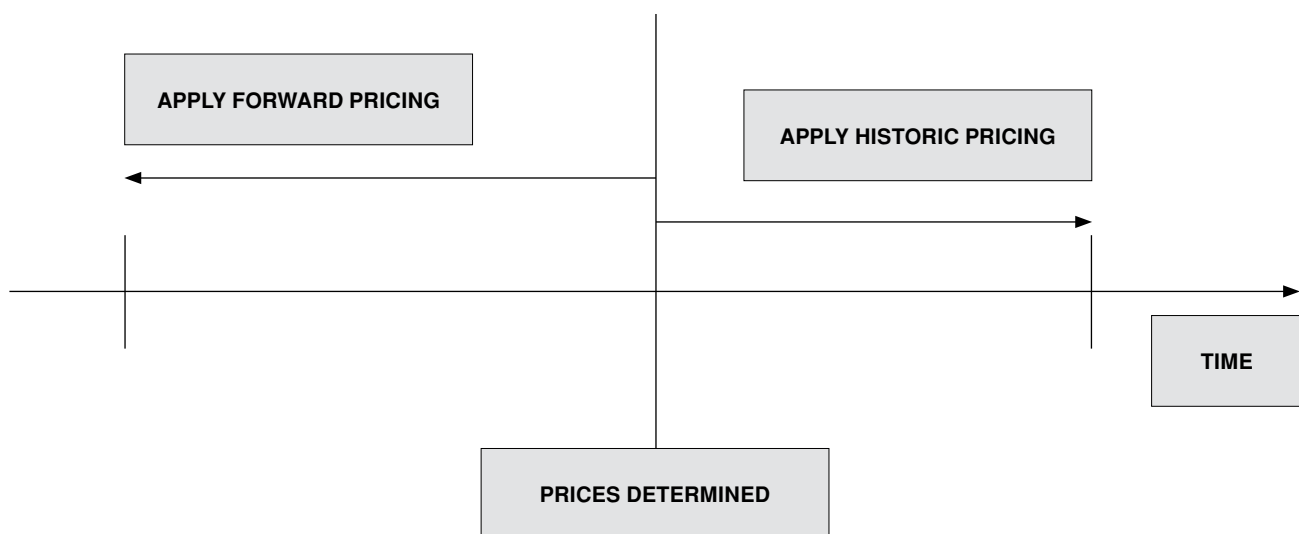
Forward and Historic Pricing

A key issue in practice is the mitigation or removal of the risk of individuals anti-selecting against the group (fund) in a way which advantages them but disadvantages the group or other fund members. An important distinction needs to be drawn here between investor choices that are fortuitous and those that are premeditated based on access to knowledge that is not generally available.

- **Forward Price:** Means that all transactions requested during the pricing period are processed at the end of the pricing period, using a price which is determined at the end of the period. Note that this requires the administration system to have the capacity to batch transactions.
- **Historic (or Backward) Price:** Means that some transactions take place during the pricing period at the price which is known, so has been determined prior to the time at which the transaction is processed.

Pictorially this can be summarised as shown below.

Using historic pricing, either in terms of unit pricing or crediting rates, can be inequitable to the group of ongoing investors when the market value of the assets supporting the fund during the unit pricing period moves significantly. If the value of these assets decreased, then exiting investors select against the fund (ongoing investors) on exit. The fundamental issue at hand is whether some investors make decisions around their transactions – contributions or redemptions, and switches in particular – with the benefit of some knowledge of the price at which they will be transacted. When this potential arises then the potential for anti-selection also arises and needs to be mitigated, and such opportunities should be expected to be exploited. This means the discussion is more far-reaching than just the timing of when the transaction is processed.



Errors

From the perspective of an investor, an error in the unit pricing process occurs when the value of their investment does not change as it should. In principle this includes the impacts of backdating.

It would be naïve to pretend that systems and processes will be capable of guaranteeing no issues or errors will arise in the future for a fund. This highlights the need to accept that issues and errors will arise, so prudent governance will need to put in place policy and processes to deal with them in either a crediting rate or unit pricing environment. We distinguish between issues and errors. Issues are events judged to be minor and immaterial when the interests of all members have been considered, in contrast to an aggregate assessment made at the level of the group or fund as a whole. Different approaches may be employed to address issues than to resolve errors.

When an error is judged to have occurred, a transition to an environment in which individual member compensation is required has been made. While we do not pursue the management and remediation of errors here, it is an important topic in its own right.

Notes

1. This paper provides a general discussion and is not intended to provide, and should not be interpreted as providing, specific advice or recommendations for any particular issue or event that may arise in practice. Each issue or event arising in practice will have its own set of specific circumstances and business management issues to be addressed.

The information contained in this document is not financial product advice as defined in the Corporations Act.