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Developing a Fair and Reasonable Unit Pricing Restitution Policy

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Abstract

The rectification of unit pricing errors has been a significant issue for many Australian financial service institutions in the past few years. There have been some well publicised unit pricing cases since 2000, and it is clear that it has been given some focussed attention by the regulators because of the size of some of the errors and the hundreds of thousands of investors that have been affected. The Australian Prudential Regulation Authority (APRA) has also been concerned that poor unit pricing may indicate other weaknesses in risk management.

Unit pricing errors are recognised as one of the major risk management issues facing financial institutions today; an IFSA (2007) survey of investment managers ranked it as the most important.

In this paper, we summarise the different approaches that we have seen taken by different trustees and other organizations, particularly in response to regulatory pressure. (We frequently use the term trustee to refer to all those tasked with unit pricing policy and investors to include superannuation fund members, management investment scheme unitholders and life insurance policyholders). Specifically we take into account some of the industry developments and practices in relation to the application of materiality in restitution programmes in the years since the ASIC and APRA (2005) unit price guide to good practice was released.

We consider the nature of the unit pricing exercise and the responsibility of trustees and product providers, and develop a framework for fair decision making in unit pricing error restitutions. In particular, we explore three main areas affecting considerations of materiality and equity – reasonable expectations, price volatility and the expense of restitutions.

In this context, we report on our use of a statistical unit pricing audit tool (ADUP – licensed from APRA) on some representative unit prices. ADUP estimates asset allocation and identifies price anomalies by the analysis of published unit prices. From this, we can illustrate some of the normal noise and measurement errors that might be expected for different unit price options.

The application of materiality in the context of errors is contentious. In our opinion, there has not been enough rigorous debate on this topic and funds have applied materiality limits that are too low when they have been applied at all. Our paper therefore aims to make some of what we have seen in the industry more visible to engender debate. We believe that a more robust approach to materiality would better serve the industry and its clients. Whilst each circumstance should be considered individually, we do give examples of a possible framework for trustees and product providers to apply to this question.

Keywords: Unit pricing, materiality, equity, restitutions, ADUP (Auditing Daily Unit Prices)

1 The trustees' responsibility

Trustees' main responsibility is to treat members fairly. Fairness (or justice or equity, which we use interchangeably) is in many respects subjective in its determination, and there may be many ways of making decisions fairly. There is, however, some point where most people, including a court, will see a particular decision as unfair. Equity avoids such points. This section considers the concept of fairness and that of materiality, which is particularly important in unit price restitutions.

1.1 What is fair?

Equity or fairness requires that the interests of all affected parties are properly weighed up by the appropriate authority, which should itself be disinterested and that all affected parties (who may be represented through relevant experts) should have equal rights to be heard. Equity is particularly concerned that no party is exploited. That the process is fair is important when trustees are exercising their discretion rather than implementing policy.

It is important that, in setting policy and in exercising their discretions, directors and managers should be seen to be largely disinterested. Particularly if some directors share in the profits of the trustee or a holding company or are members of the fund, they should be careful that their own interests do not materially influence decisions of compensation or restitution.

Asher (2006) discusses these issues and describes a range of criteria required by justice. The criteria used are efficiency, just deserts, equality, need and liberty. These criteria also apply to unit pricing where they identify the, sometimes competing, objectives that any fair decision should seek to achieve:

- Efficiency, which means that decisions should be implemented as effectively and with as little cost as possible and may often be considered first in commercial transactions;
- Just deserts, which is also called actuarial equity (by economists). It requires benefits to be related to contributions accumulated at the market return and members affected by errors to be placed into the position in which they would otherwise have been;
- Equality: which can be expanded from horizontal equity which requires members in the same position to be treated in an exactly equal fashion, to include vertical equity, which requires differences in treatment to be proportional to differences in circumstances;
- Need, which requires trustees to consider whether beneficiaries have any particular needs that are relevant to the decision, such as the bereaved, who may not want to reopen an estate;
- Liberty, which means that members should not be restricted by decisions that affect them, such as delays in processing withdrawal applications.

1.2 Reasonable expectations

The relationship between the members and the trustees of a superannuation fund and the investors and managers of a managed investment scheme is not one of contract. While life company policyholders have contracts, the contracts may contain significant discretions.

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There may be some debate as to whether the discretions are appropriate, but the following special conditions do apply:

- The relationship is intended to be long term, which makes it unlikely that all contingencies can be foreseen in advance and so the trustee or manager be given some powers of discretion
- The investor faces significant costs should the relationship be broken
- The investor must therefore have the reasonable expectation that the trustee or manager will behave fairly in exercising its discretion
- There is no universal agreement as to the meaning of these reasonable benefit expectations but the concept plays a particularly important role when contract terms are changed, such as a transfer of business from one company to another. It is used in Australia by APRA and played a role in actuarial reports for the recent court review of the transfer of business from Metlife to Challenger.

Meeting the reasonable expectations therefore also plays a role in the decision as to whether a discrepancy is an error, and then how to correct for that error.

The case has been made (see Smaller et al, 1996) that reasonable benefit expectations are created by:

- legislation and legislative practices;
- the governing rules of the fund, past and present;
- past practices of the trustee or manger;
- what has been indicated to investors in the past by both employers and trustees and
- practice by other funds (we particularly do not use the term "industry practice" as it is incoherent because there is no competent body to determine it.)

Disclosure is important in determining benefit expectations. If members have been told that a certain process has been followed and it has not been, then members may legitimately feel unfairly treated. If the process has been communicated as being up to the discretion of the Trustee, then members clearly would have less grounds for feeling that they were treated poorly if the Trustee had – for whatever reason – not followed its intended process.

1.3 Materiality

Balancing the interests of the different members and the different criteria to produce a fair outcome inevitably brings on to the question of materiality – what is the threshold below which certain processes should be deemed to be effectively irrelevant to the principles at stake and the interests of each of the stakeholders?

When errors arise, then investors can reasonably expect the trustee to consider compensating those who have lost as a consequence. However, there must be a threshold below which the act of calculating, implementing and making the payments (‘the restitution process’) would not be in the best interests of the investor, other members of investment option, trustees, shareholders or perhaps the industry as a whole.

1.3.1 De minimis

The aim of having a materiality threshold is to assist, where possible, to achieve a pragmatic solution to simplify the calculations or to adopt a simpler approach to compensation for these

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affected investors. One of the principles to any restitution programme should be that it is desirable to correct the error for most investors as quickly as possible. Amounts below this threshold can be regarded as *de minimis* (immaterial). The following is extracted from Harrison (2006) to show that the legal concept applies in an Australian context:

The CCH Macquarie Concise Dictionary of Modern Law defines it: “de minimis non curat lex – the law does not concern itself with trifles.”

Black’s Law Dictionary is a little more expansive: “1. trifling; minimal. 2. (of a fact or thing) so insignificant that a court may overlook it in deciding an issue or case.”

Davies J, when discussing the issue of whether a contribution was material, noted in *Repatriation Commission v Bendy*: that a contribution which is *de minimis*, “which did not influence the course of events or which is so tenuous as to be immaterial is to be ignored (146, (1989) 18 ALD 144).”

In *Farnell Electronic Components Pty Ltd v Collector of Customs*, Hill J included extensive commentary on *de minimis* noting “... that the applicability or otherwise of the maxim depends on the context in which it falls to be considered. (327, 1996) 142 ALR 322.” The author concludes, however, with the comment that “As can be seen there are certainly general principles, but rather more general than a decision-maker may wish!”

Finding more specific court cases is more difficult.

- A US tax court however had no difficulty in regarding \$1,200 out of an amount of over \$7 million (2 basis points – bps henceforth) as *de minimis*. (*Dunn v. Comm’r* (5th circ, 2002) at note 27)
- A quick survey of the use on the internet shows it used in contexts to refer to a few basis points to 10% in the case of some tax and international trade rulings. The question is clearly context based.
- We understand that there are no Australian cases where it has been used in cases applying trust law.

The pressures of a restitution process can become so intense that it is sometimes easier for trustees to take what they feel is the ‘safest’ route legally and publicity wise – to calculate the restitution amounts to the nth degree of accuracy and the make payments for all amounts calculated. We feel that this is counterproductive to the interests of all parties involved, including the affected investor, and it suggests a level of accuracy that is spurious in the context of the nature of unit pricing. This is not in the best interests of the industry as a whole.

It has also been suggested that APRA and ASIC are not convinced that the concept of *de minimis* applies to remediations. This might well be inferred from the injunction in their Unit Pricing Guide that: “Product providers need to determine whether they comply with their obligations by applying a materiality threshold for the size of the error for which compensation will be paid.” We would suggest that this is ambiguously worded and that the intention is better expressed by APRA General Manager Rush (2007): “The focus of the Guide is on the application of principles. It stresses the need to consider the circumstances of each situation. The level of materiality to apply in a particular case is not therefore decided by the regulators.”

We therefore suggest that *de minimis* is a legal principle that has a role in unit pricing restitutions where the error is so small that it offends none of the parties or principles concerned.

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1.3.2 Stewarding time

Trustees and fund managers do not have an unlimited amount of time to consider their many responsibilities. We suggest that the amount of time and costs that we have seen spent on considering and correcting unit pricing errors is entirely disproportionate to their importance and the amount of harm that can be suffered by members.

This paper is intended to make it easier to delegate the correction of errors and to make more rapid and fairer decisions.

1.4 Administration contracts

The Australian regulatory environment means that most trustees have formal contracts with “outsourced” administrators who determine the unit price. Such contracts may well describe the unit pricing process in some detail. Failure to fulfil the terms of the contract (formal or implied) leads legally to a claim for compensation. Trustees frequently feel obliged to recover as much as possible from the administrators. The regulators have appeared to encourage this view.

We suggest that this approach might be revisited, mainly because in the long run, the administrators will have to pass the costs back to members. The long term impact of a practice that is more eager to remediate small errors will be an increase in the cost of administration services. Service providers necessarily set their charges at a level that they are sure to be able to cover the expected costs of remediation. In taking on business, it is plausible that an external administrator will take into account whether they want a relationship with Trustees that have a history of restitution for the smallest errors.

2 Nature of unit pricing

Most Australian funds are priced daily. Daily unit prices are used by unit trusts as the most satisfactory way of ensuring that investors in a 'pool' are able to obtain direct participation in the performance of the underlying investments.

Pooling of investments gives individual investors access to the benefits of diversification, access to investment assets with smaller funds available than otherwise, and access to a wide range investment managers and related expertise. However in being a member in a pool, they suffer from disadvantages from approximations in unit price calculations (notably lags in the striking of unit prices, tax allowances and allowances for transaction costs) and hence there is a certain degree of cross subsidisation between members. In many untaxed funds, the cross subsidies arise only from intra-day differences in asset prices.

It is therefore widely accepted that various approximations and estimates are necessary. In an environment where perhaps hundreds of prices are determined daily within any one organisation, greater accuracy would inevitably lead to much greater costs that could not be justified.

The above statement applies as long as judgement and estimates have been based on sound principles, they have been applied consistently, there are controls in place to regularly monitor their appropriateness and they have been communicated adequately to investors.

2.1 Common causes

The ASIC and APRA Unit Pricing Guide (2005) differentiates errors from cases where sound policies have been applied consistently or are reviewed based on reasonable principles from time to time. Errors are not considered to have occurred, for example, when reasonable estimates are made for information which is not available as long as unit prices are adjusted as soon as the actual data becomes available.

A Deloitte Study (2007) expands on this with the following examples of common errors:

- Incorrect prices of underlying assets have been used
- Unit transactions have been backdated incorrectly or without appropriate compensation
- Interest and dividends have not been accrued
- Tax has not been deducted properly
- Imputation credits have not been added
- Deferred tax assets have not been appropriately determined
- Computer programs and data have become corrupted
- Erroneous fees and charges have been deducted
- Appropriate adjustments for corporate actions and capital reconstruction in underlying shares have not been made
- Previous errors have not been corrected properly

2.2 Investigating unit pricing errors

Our view of materiality is informed by our experience of investigating unit pricing errors. In particular, we have used ADUP, a unit pricing tool, to produce graphs of unit price movements. These allow us to identify errors, and also show that the errors are frequently minute relative to the movement of prices.

2.2.1 ADUP description

Asher and Cham (2006) describe a unit pricing analysis tool, ADUP developed at APRA (and used under license) to identify unit pricing errors.

The tool uses published daily movements in unit price to:

- a. Estimate - using a constrained regression - the average asset allocation over the past year,
- b. Determine daily price movements consistent with this asset allocation and compare them with the actual price movements, and
- c. Compare the cumulative effect of these estimated or fitted movements with the actual movements over the past year.

The results from (a) provide a check on whether the fund is investing “true to label”. Results of (b) and (c) show whether there have been significant price movements over the year that are not explained by the estimates. The tool also can show the total “over-performance” for the year relative to the estimated asset allocation, after an approximate adjustment for taxes and fees.

2.2.2 How we use ADUP

ADUP provides a high level check on investment performance and the accuracy of every unit price in the year. Anomalous daily price movements of more than 2.5 standard deviations from the expected value are normally easily identified on the graphs and have as often as not been found to arise from errors. It is not possible to pick up errors that are much smaller than these, but the question might be asked as to whether they are material - as long as the longer term performance is reasonable and there is some certainty that the manager of the fund is not benefiting through excessive fees.

The examples in Appendix A show how errors that show up as significant outliers on a graph of daily movements, are minuscule when seen in the perspective of the year’s movement.

2.2.3 Application to materiality

We suggest that it would be easier to understand a materiality policy that was based on the average daily movement in the unit price rather on the standard deviation of the ADUP residuals. The relationship between the two depends on the extent to which the ADUP model explains the actual daily movements, which we measure by the reduction in the sum of the squares of the daily movements achieved by the model. For a fund with a typical reduction of 90% in the sum of squares, 2.5 times the standard deviation of the residual is approximately equal to the average daily movement.

This suggests that the level of materiality of a fund could be based on the average daily movement in the price.

2.3 Regulatory and Industry guidance

2.3.1 ASIC and APRA Unit Pricing Guide

ASIC and APRA published a joint unit pricing guide for the life insurance, superannuation and funds management industry in November 2005. It is expected that product providers would follow the good practices described in this guide, on top of any other industry guidance that is give.

They also recognised that product providers may have "*reasonable and well documented*" alternative practices in place.

In the context of errors and the application of materiality for the compensation for errors, the following extracts and discussion from the guide is relevant (Section 6, Consumer Issues).

- In reporting to the regulators, the product provider must communicate the "*basis for determining whether compensation is payable*" and the "*basis for deciding the amounts of compensation to be paid and who will receive it*". The latter needs to have regard to legal obligations, as well as "*not profit[ing] from any error*".
- The overarching principle that the regulators are working within is "*duty to act in the best interests of unit holders as a whole. ...act honestly, diligently and impartially. As between unit holders, you must treat unit holders fairly.*"
- Whilst the regulators take the view that unit holders should be compensated to the extent of the disadvantage to them due to the error, they also take a pragmatic line "*When deciding the extent to which compensation is payable, it may be relevant to consider the degree of precision that can be used in calculating unit prices*", particularly with reference to "*soundly based estimates...[used] for some elements of the unit pricing calculation.*"

As a general rule, the guidance states that if the error is greater than 30bps (of the accumulated value determined without the error) then compensation should be paid. If the error is less than 30bps, then the product provider should consider whether the compensation should be paid, taking into account:

- The type of asset involved e.g. lower threshold for cash asset than equity asset
- Whether the error related to incorrect calculation of fees. In this circumstance, the regulator took the stance "*it must be compensated in all cases*". This seems to imply no materiality is to be applied here; however, we would suggest that as long as the shareholders do not benefit from the error then a materiality threshold may still be applied.

The guidance cautions care is needed by product providers in the following situations:

- For dollar limits below which compensation is not to be paid, then there may be possible discrimination against unit holders with smaller investments.
- Where the costs of compensation will be borne by the existing members of the fund.

Whilst it recognizes that there is industry guidance on compensation for errors it makes the statement "*we expect you will follow the principles relating to compensation described in this good practice guide*" implying that this regulatory guidance takes priority.

2.3.2 IFSA standard

IFSA released *'IFSA Standard No 17 - Incorrect Pricing of Scheme Units – Correction and Compensation'* in July 1999 and updated it in October 2006. The standard is mandatory for all of its Members.

IFSA Standard no. 17 specifies the principles that should be followed when dealing with errors in unit pricing, as well as the minimum requirements when setting a compensation policy where errors have been identified.

In determining whether there was 'pricing impact', the Standard considers that if *'sound policy, approximations and estimates'*, and that a reasonable attempt was made to estimate the impact on unit prices for any known/unknown events then there is *'no pricing issue'*. The IFSA standard also introduces the concept of the practicality in the process of making any estimates.

In the context of errors and the application of materiality for the compensation for errors, the following extracts and discussion from the IFSA guide is relevant.

The Scheme operator *'may choose'* a materiality threshold to assess whether an error is compensated, but this must not be in excess of 30bps (as a percentage of the correct unit price) *'at a particular point in time'*. The Standard mentions that a lower materiality threshold may be appropriate depending on an assessment of the assets involved and the nature of the error e.g. a threshold of 5bps may be more appropriate where the Fund is invested in cash assets.

The Standard reiterates the regulatory guidance where compensation must be paid so that the Scheme *'does not retain [any] financial benefit'* from an error, e.g. where errors related to incorrect charging of fees.

In setting minimum dollar compensation amounts to be paid to an individual investor, the Standard provides the guidance that the Member should consider legal requirements and obligations under its constituent documents, and the costs to members with making the small compensation payments. Having stated those considerations, the Standard specifies quite firmly that the maximum amount of such a threshold is \$20.

2.4 Industry Case Studies

We have seen a number of different ways in which materiality in unit price error restitution have been applied. The amount applied can vary depending on the type of fund, whether the investor was in force or out of force at the date of payment, and the tax status of the fund and the payment.

Dollar levels

- Some institutions have issued cheques for as little as a cent, others have rounded up amounts for as little as a cent to \$5
- Others have ignored amounts of less than \$5, \$10 or \$20, but paid to the Fund or a specified charity where the product provider would otherwise have benefited.
- Non IFSA members have applied levels up to \$100 so as not to reopen death claims to compensate survivors.

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- Trustees often write letters to offer to pay cheques for smaller amounts if members ask for it, or will do so if members complain after reading about the error in an annual report.

Basis point levels

- We have seen materiality levels of 5bps for cash funds; and 20bps and 30bps for a single event.
- For recurring losses, we have seen levels of 10bps p.a. and 30bps p.a.

A number of institutions have begun (in the last couple of years) to incorporate wording in their Product Disclosure Statements (PDS) to manage investors' expectations as to how errors will be handled. It is clear from these examples that the IFSA Standard drives the materiality policy. For example,

- Credit Suisse/Tremont Index Strategies Fund (PDS, 31 May 2007)

“Reasonable estimates may be used to value the assets if the price is unavailable provided there is a verifiable methodology to support the estimate... that is independently verifiable. Should an error occur in a Unit price, we may choose to use a level of materiality to assess whether an error requires compensation to be considered for the investor of the Fund. The materiality threshold used for such an assessment will be no greater than 0.30% of the price of a unit or in the case of individual investors, where the compensation amount is \$20 or more.”
- AMP Flexible LifeTime Super (PDS, 1 July 2007)

“The unit prices can sometimes be found to be incorrect because of errors made at some point in the process. If certain types of error are made, this may require a correction. If this occurs, a tolerance of 0.30% of your plan value in the affected investment option has been set to determine if a correction needs to be made. If a unit pricing error is less than 0.30%, generally no correction will be made. However, if an error is equal to or greater than 0.30% and the error affects (or affected) the value of your plan in the affected investment option, AMP Life will pay compensation directly into your plan or, if you have closed your plan, attempt to send you a compensation payment (for example by cheque) if the payment would be at least \$5. Payments under \$5 would be contributed on an unallocated basis into the AMP Superannuation Savings Trust [the Fund]. The Trustee, acting in your interests, and AMP Life may agree to make other adjustments, as appropriate.”
- MLC Masterkey Super (PDS, 22 June 2007)

“Unit prices are calculated using a number of facts and assumptions. Sometimes after calculating a unit price, these facts and assumptions can be found to have been incorrectly applied, requiring a unit price correction. In this regard, MLC believes a tolerance of 0.30% (0.05% for a cash investment option) of a unit price is acceptable so that if an error does occur within those limits no correction will generally be made...These adjustments will only occur if the amount is material, which is currently defined as more than \$20.”

3 Determining materiality

3.1 The process

The process to be followed can be developed by applying the principles set out in Section 1.

3.1.1 Is there discretion?

In some cases, the trustee or manager may have no discretion. If there is an explicit contract with the investor to trade units determined in a particular way, this contract must be fulfilled if possible. In our experience however, the trustee is often required to exercise discretion:

- The contracts are seldom explicit but rather have to be based on reasonable expectations
- Incorrect unit prices mean that some members have benefited at the expense of others. The question that arises is whether the members' and other stakeholders' interests are best pursued by recovering amounts from those members that have benefited
- If the written contract is impossible to fulfil, there is the need to have it re-interpreted or perhaps amended

Trustees and managers have to ask whether the absence of discretion is of a benefit to investors in removing uncertainty, or comes at an excessive cost. We believe that the current arrangements, which offer discretion to most trustees, offer all parties a better value proposition.

3.1.2 Are the judges disinterested?

The people making the decisions on restitution should if possible be free of conflicts of interest: Particular care should be taken to ensure that:

- No one favours a group of members to which they belong
- No one hides errors in order to protect their own reputation
- No one enriches themselves or their employers (or avoid costs that should be paid)

The first is relatively easy to avoid, but the other two often extremely difficult. It suggests that an independent arbiter should make the decision. The non-executive directors of the trustees of superannuation funds can perhaps best fulfil this role.

An important consequence of this is that product provider should never benefit from any of the losses to affected investors when errors are identified. Any amounts that are decided to be below materiality thresholds should not be kept, but reinvested in the fund or perhaps distributed to a nominated charity (if this does not breach the sole-purpose test per Subsection 62 (1) of the Superannuation Industry (Supervision) Act 1993).

3.2 Determining reasonable expectations

If the unit pricing and error correction methodology is not contractual (nor included in the Product Disclosure Statement), then the trustee needs to determine the investors' reasonable expectations. These may have been created by marketing material produced over a number of years and internal procedures that have been communicated over time to a variety of stakeholders.

3.2.1 Industry standards

In the event that nothing has been said, investors could reasonably expect the APRA and IFSA guidance notes to be followed. If the practices of other funds are well known, then they too can create expectations if nothing else has been said.

One implication for product providers and the industry more widely, is that adopting a particular policy will set a precedent for future practices. We therefore argue here that the time invested in coming up with a justifiable and sustainable materiality policy is in the best interests of all industry participants in the longer run.

3.2.2 Past internal practice

Past internal practice in relation to assessment of the materiality for unit pricing errors and/or approximations used in unit pricing sets a precedent for the trustee, and therefore influences the reasonable expectations of its customers and the regulators. We have seen companies with well documented procedures showing various trigger points (in basis points) at which a discrepancy in unit prices would instigate an internal investigation for causes, or a corrective action if an error is identified.

3.2.3 General accounting guidance

Auditing standards AASB1031 suggests a level of materiality of 5% of balance sheet items and 5% of profit for items in the income statement. In this case, the 5% should be applied to the investment return received by the funds.

Investment returns will vary by investment option. Adopting a test of 5% of the investment earnings leads to a materiality threshold of between 15bps to 45bps p.a. if the net returns vary between 3% and 9% p.a. after fees and taxes.

3.3 The criteria

We suggest that the criteria below must be considered when trustees exercise their discretion. The criteria include efficiency, just deserts and equality.

The criteria often have to be balanced against each other. A wide variety of decisions can be seen as fair.

3.3.1 Efficiency

Efficiency covers the cost of meeting the other criteria.

It appears to be inefficient for investors to be compensated unless the compensation is significantly greater than:

- the volatility in the fund between times when prices are set (daily or weekly);
- measurement errors that occurred over the period of the errors;
- the costs of remediation;
- The costs that they incur to process the information.

It would also be inefficient to incur more costs in recovering amounts from members who have benefited from errors than the amounts recovered

3.3.1.1 Inherent approximations and volatility

In the normal course of events, investors would make buy and sell decisions over periods of days or weeks rather than overnight. Daily fluctuations average as little as 2bps on cash funds to 100bps in international equity funds. This level of volatility is an acceptable part of investing in the market. In the context of materiality, we argue that this gives the order of magnitude below which operating decisions around refinements in unit pricing would be spurious accuracy.

The size of any error needs to be compared with the noise or measurement error inherent in the determination of unit prices. We do not believe that there should be an intensive investigation, and expensive restitution applied to correct errors that are much less than the normal fluctuations that arise from random variations in prices.

As well as market volatility, additional noise arises from approximations to the market price that are used in creating the unit prices. The most accurate methods using daily prices use the price at the end of business day (as against when assets are actually purchased) and add buy and sell spreads to approximate the costs and market impact of buying and selling. Longer term fixed interest investments are often priced by reference to a yield curve that may vary by 10bps and more depending on the method of calculation.

The size of these measurement errors can be estimated by looking at the daily volatility of unit prices. The following table illustrates the indicative volatility observed in sample funds in the 2007 calendar year:

Table 1: Indicative volatility (average daily movements)

	Mean absolute change
Short term fixed interest	0.02%
Conservative	0.40%
Shares and property	0.80%

The volatility of weekly priced units is approximately twice as high as daily priced units.

3.3.1.2 Approximations in the allocation of tax

Regulatory and industry guidance recognise that some level of estimation and approximation is reasonable within the calculation of unit prices, as long as they are based on sound principles and are regularly reviewed for appropriateness. Because of the inherent approximations within the unit pricing process, a level of tolerance should be seen as reasonable in the instance where an error is identified.

One of the key areas where estimates are applied is in the allocation of tax. There are alternative views as to what constitutes a fair allocation of tax. The table below illustrate how tax accrual estimates can differ depending on the formulae and assumptions used, and the actual rate of fund earnings in the year. It compares a simpler approach of taking a fixed proportion of the investment return as tax (Column A: 5% for a shares fund and Column B: 10% for a balanced fund) with a more accurate approach (Columns C and D) that makes explicit assumptions about interest, dividends, expenses and imputation credits. The differences in the columns show how much approximations can vary.

Table 2: Sample tax estimates

Return in year	Simple Approach @ 5% Shares Fund [A]	Simple Approach @ 10% Balanced Fund [B]	Accurate CGT=10% [C]	Accurate CGT=15% [D]
	-10% (with deferred tax assets)	-0.50%	-1.00%	-2.00%
-10%	0.00%	0.00%	-0.50%	-0.50%
-5%	0.00%	0.00%	-0.50%	-0.50%
0%	0.00%	0.00%	-0.50%	-0.50%
5%	0.25%	0.50%	-0.50%	-0.50%
10%	0.50%	1.00%	0.00%	0.25%
13%	0.65%	1.30%	0.30%	0.70%
17%	0.85%	1.70%	0.70%	1.30%
20%	1.00%	2.00%	1.00%	1.75%

Of course, the actual rate of tax to be applied to capital gains cannot be known finally until the tax return is accepted by the ATO. The average rate applied to realised gains can vary between 10% and 15%, but some policies towards deferred tax assets can mean that the rates fall outside this range.

As can be seen there are relatively large differences in the columns that depend on the methodology used and the rate of tax that is applied.

3.3.1.3 Cost of remediation

There are two elements to this issue:

- The overhead cost of the setting up a remediation process (which includes management distraction from day to day operations; costs of determining methodology, calculating and implementing; costs of tracking exited members and setting up call centres to handle queries and the costs of advisers).
- The marginal cost of paying compensation to individual members (e.g. correspondences, cheques and postage).

Costs of remediation will vary significantly, but in our experience, this can often be of the order of the amounts remediated (we've heard of cases where costs incurred for correcting errors are up to ten times the amounts being remediated).

In our experience, even relatively simple errors incurred by smaller superannuation funds can cost over \$1 million to correct. The marginal payment costs in respect of members are likely to exceed \$20 for out-of-force members (tracking, correspondences and cheques) and \$5 for in-force members (adjustment of member balances and correspondence). These costs are greater when unit pricing errors are being addressed for the first time, although we have observed that few organizations appear to have used the opportunity to develop a formal overarching policy for remediation, or computer systems that treat the remediation of errors as "business as usual".

3.3.1.4 The costs to members

The benefits to the members who have lost are reduced by the administrative burden of having to read any literature that is sent to them, cash any cheques and incur additional costs in ensuring that their tax returns and tax payments do not require correction. If their new superannuation or annuity fund is being credited with the amount, then they will - directly or indirectly - be charged for the costs of administration.

- Where members' existing balances are being corrected, the only issue is the information that may need to be read. Given that the information it is relatively complex, one could estimate 3 minutes a page of reading. A rectification that required 5 pages of information could therefore be costed at \$10 for someone being paid a relatively low hourly rate of \$40. Much depends on the individual concerned and their view of the opportunity cost of the free time lost, but \$5 is not unreasonable.
- If members are receiving a cheque, which they have to cash, the costs are clearly higher. A range of \$5 to \$20 might perhaps be considered.
- Where accounts with another superannuation fund are being credited, the costs are likely to be higher again. Based on the charges that banks make for unusual transactions, costs of \$50 would not be unreasonable.
- Costs become astronomical if the receiving fund has to perform its own remediation exercise - which often occurs with fund of fund arrangements. The receiving fund can of course impose its own materiality thresholds, but we would think that the management costs of making decisions are likely to be over \$500.

3.3.1.5 Recoupment of costs from their members

In some instances, the trustee may only be able to recoup compensation arising from errors from other fund members or from some reserve that has been set up for the benefit of all members. In such a case, it may not be seen so much as a materiality question as a balance between efficiency and precision.

It can be extremely expensive to recover amounts overpaid to exited members, and recovering money from current members may give rise to loss of business, complaints and perhaps litigation. It can be appropriate to apply much higher levels of materiality in cases where recoverability is sought. We would expect trustees to balance probable amounts that could be recovered against the probable costs of collection, including litigation and adverse publicity.

Where amounts can easily be recovered from other parties, then a lower level of materiality should be applied.

3.3.2 Just deserts

Unit pricing gives a fair return to investors in a pooled fund because each gets a benefit closely related to their contributions plus investment earnings over the period over which they invested. It might be argued that the return is more often due to luck rather than good judgement, but it can be said that they deserve to get the returns that have been earned with their money.

3.3.2.1 Restitution from arbitrage profits

In making restitution for unit pricing errors, a distinction should be made between those made in error and those that resulted from intention. This suggests a different treatment for arbitrage errors - where some members have exploited an approximation in the unit price at

the expense of others. Such circumstances would seem to justify a lower materiality threshold when considering a correction to the approximation that removes the benefits from the arbitreurs.

As it can be extremely difficult to recover arbitrage profits from members, particularly if they have left, trustees should take considerable care in ensuring that arbitrage is not possible.

3.3.2.2 Unjust enrichment

Restitution for errors can be classed as restoration of unjust enrichment. The legal basis is somewhat murky and readers are referred to Birks (1999) for an erudite discussion; a short summary can however be found in Wikipedia:

"Unjust enrichment is a term used in law to denote a particular type of causative event (i.e. a particular type of event in the real world, which triggers a legal response). If one party is unjustly enriched at the expense of another, in the sense in which the law understands that phrase, then an obligation to make restitution arises. What follows below is a discussion of what exactly the law does understand by the phrase 'unjust enrichment at the expense of another'.

It should be pointed out that liability under the principle of unjust enrichment is wholly independent of liability for wrongdoing. Claims in unjust enrichment do not depend upon proof of any wrong. Having said that, it is possible that on a single set of facts a claim based on unjust enrichment and a claim based on a wrong may both be available. ...

A typical example of a claim based on unjust enrichment is that of payment by mistake. Imagine that B is accidentally given \$10 too much change by shopkeeper A. B does not notice the mistake. There is no way that B can be accused of any wrongdoing. Nonetheless, the law imposes an obligation on B to repay \$10 to A. This is because B has been unjustly enriched by \$10 by A's payment. Unjust enrichment, if proved, always triggers an obligation to make restitution. It never triggers an obligation to pay compensation because such an obligation might leave the defendant, who is normally entirely innocent, out of pocket.

Two further points that arise from some of the cases described in McBride and McGrath (1995) that are relevant to unit pricing errors.

- Those that have gained from an error are not necessarily obliged to make good all of the loss of those that have lost if they are no longer in possession of the proceeds. Thus, members who have benefited from an error can not be required to repay the benefit if they have already spent it. On the other hand, members that have lost to other members cannot expect to be compensated for the full amount of their loss if restoring the loss involves significant administrative costs. This would suggest that consideration could be given to deducting the administrative costs of restitution from the restitution itself.
- Those that have gained are not always obliged to make good the loss of the other party if another more able party can do so. Members who have gained from an error could use this principle to argue that trustees must first attempt to recoup losses from service providers and shareholders. Given however that the amounts involved are usually small relative to the investors' total assets, and that service providers and shareholders will take steps to recover their losses from other members, we do not believe that this argument is practically valid.

3.3.3 Equality

There are many different approaches to equality. One can think in this context of:

- Equality of opportunity - to complain perhaps - or of outcome
- Of utility or financial amount, which would mean that the interests of lower income people deserved greater consideration
- Of proportional or dollar amounts.

3.3.3.1 Systematic biases

Systematic biases mean that some classes of members are better off than others, which would violate the concept of equality. Where such biases could have reasonably been allowed for, using estimates that are more accurate for instance, then it could be considered by regulators and industry guidance as an application of unsound policy. In considering compensation for such biases, trustees might however apply greater materiality limits and place greater consideration for the costs involved than with arbitrage profits.

3.3.3.2 Random errors

Random errors will mean that all members had an equal chance of winning or losing. Such errors would only violate the concept of equity if they significantly distorted the relationship between contributions and benefits. Even greater materiality limits would appear to apply here and particular consideration given to the size of the other random risks to which members are exposed.

3.3.3.3 Dollar materiality levels

The ASIC and APRA guide raise the objection that dollar materiality levels could be seen to discriminate against lower income people. The assumption is that a given dollar amount has greater utility for lower income people.

While this is probably true, it is unlikely that it applies at the \$20 level that IFSA has set at the ceiling to these levels. \$20 dollars represents 0.3% of accounts under \$7,000. Most of these arise from members who have not consolidated their balances when moving employer. (An Australian earning the minimum wage is placing \$2,000 annually into their superannuation account) With few exceptions, therefore, these are held by people who have not taken the effort to save the annual costs of between \$10 and \$30 that they would save by consolidating their accounts. Low account balances are therefore not necessarily indicative of low income or of low materiality levels.

Small corrections to unit prices could be seen in the context of investors' total investments. Even the lowest income Australian can be expected to save \$100,000 in their superannuation accounts over their lifetime. If they do not make these savings, they are entitled to a state pension worth over \$150,000. In this context, even 10 bps exceeds \$100, which would – in our view – be a much more appropriate average minimum size for cheque payments.

3.3.4 Need

Given the trustee is unlikely to be aware of the specific needs of the investors, this is not a common consideration. This criterion could however allow trustees to consider the particular position of recipients of death claims, or of investors who might have to re-open a previous year's tax file or of an investor in a feeder fund who might incur significant costs to distribute small restitution cheques.

3.3.5 Liberty

This criterion is largely met if investors have choice of where they want to place their investments, which is inevitably the case in Australia. Given the administrative difficulties that can arise from processing remediation payments, consideration could sometimes be given to allowing trustees or members the choice of paying restitution to charity. This has occurred at least once to our knowledge, although it might be seen as a breach of the sole-purpose test in Subsection 62 (1) of the Superannuation Industry (Supervision) Act 1993.

4 Applying materiality

In this section, we suggest ways in which a materiality policy might be developed, bearing in mind the principles and criteria discussed in previous sections of this paper.

A pragmatic policy would first ensure that the principles of equity were not infringed. We suggest that this might include:

- The fees deducted from the fund would be subject to a specific confirmation from the auditors or another party that ensured that fees were no more than disclosed to the investors. This would normally require a specific comparison with the fees and the fund prices. These fees should include stockbroker charges - particularly if the trustees have some commercial links to stockbrokers.
- The possibility of biases or arbitrage would be subject to specific investigation of the ratio of the actual returns to specific investors relative to their expected returns should they have invested in the fund benchmark. Listing the top 10 and bottom 10 investors would identify any biases.

It is important to determine a trigger point (sometimes referred to as ‘tolerance levels’) at which restitution and correction for errors will be made. Trigger points might be reasonably determined with reference to the normal day to day volatility in fund prices and measurement errors implied within the unit pricing calculation methodology. For example,

- The cumulative impact on any investor exceeds the average (absolute) daily movement of the prices in the past year (statistically, 80% of correct movements should be within this range). This would vary by investment option, but for share funds, this would imply an error of some 80bps.

Once the trigger point is reached, then it would be appropriate to consider materiality thresholds, below which error correction of price series will not be made, and payment for the error would not be made. The criteria to consider were outlined in Section 3 of our paper, and include:

- Costs of remediation (costs relative to amount of remediation being considered; who bears the cost of remediation short term and longer term)
- Costs to members to process the information

This might give rise to a restitution policy along these lines:

- If the cumulative effect of the error exceeds the average (absolute) daily movement, the trustee will calculate new, correct, prices for those days where the error exceeds half the average (absolute) daily movement (this would vary by investment option, but would be about 40bps for a share fund) These new prices will be used to determine the amount to be restituted.
- Existing investors will be given new units if the amount exceeds \$10 (a reasonable range would be \$10 to \$50; the number would depend on circumstances outlined in Section 3).
- No payments will be made to out-of-force investors unless the amounts exceed \$100 (a reasonable range would be \$50 to \$500 - the number would depend on circumstances outlined in Section 3).
- In a commercial fund, the restitution amounts and the costs will be paid by the shareholders. In a not-for-profit fund, the trustee will pay the restitution and costs from a reserve but limited to ensure that the reserve remains sufficient; otherwise, it will recover

Developing a Fair and Reasonable Unit Pricing Restitution Policy

amounts from investors who benefited and from the restitution paid. Out-of-force investors who benefited from the error will not normally be pursued unless the amounts overpaid exceed \$1,000.

- Immaterial amounts not paid out should be paid back into the relevant fund (on an unallocated basis)

4.1 Changing the policy

Trustees or product providers who are members of IFSA are largely bound by their standard, but the standard can readily be changed if members agree. We hope that this paper contributes towards achieving this.

If not bound by these standards, trustees or product providers would be able to apply a more pragmatic materiality policy, which they should reflect in their product disclosure statements.

It has been suggested to us that there might be a case for law reform if trustees or product providers find themselves bound by past practice and regulatory and legal doubts about their freedom to be more pragmatic. We believe that there may already be a movement towards a more pragmatic approach throughout the industry, so suggest that it may be too early to pursue a proposal for law reform. The question of materiality could however be addressed in legislation that implements the proposed product rationalization framework.

4.2 Conclusion

Materiality is a matter of judgement. In practice, the principles underlying materiality thresholds should be adapted for the particular circumstances of the error and the philosophy of the Fund.

We have suggested a process for exercising discretion that sets a reasonable level of materiality. The process should follow the following steps:

- Do the trustees have to exercise their discretion?
- Are the trustees disinterested?
- What are the investors' reasonable benefit expectations?
 - From disclosure documents
 - From past practice
 - From professional and industry guidelines
- Weigh up the different criteria
 - Efficiency, given measurement errors and costs
 - Just deserts, so undoing unjust enrichment and wrongs
 - Equality, considering systematic and random biases
 - Special needs of any investors
 - Liberty

Ultimately, our view is that in the long run investors will be better off in the industry develops a more pragmatic approach to error rectification.

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APPENDIX A: ADUP

ADUP INTERPRETATION KEY

Reduction of SS % (Sum of square residuals)

A number over 90% shows a very good fit. Less than 50% means the fit is poor and so the asset allocation is suspect.

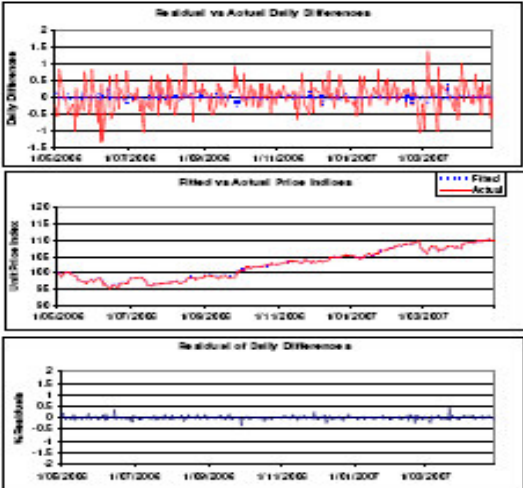
Estimated Asset Allocation is based on mathematical fit with price movements. It can be used to check that investments are "true to label"

Actual over-performance outside a range -2% to +2% might be investigated



Residuals are the percentage difference between the estimated and the actual daily price movement. Standardised residuals have been divided by the standard deviation to show their relative size

The 5 biggest and 5 smallest standardised residuals should be investigated if bigger than 2 or smaller than -2



Large & Small Standardised Daily Differences

Date	Standardised Daily Difference
28/02/2007	2.182708730
18/02/2006	2.021441280
28/11/2006	2.008123064
23/02/2006	2.002126280
23/02/2006	2.240190154
28/02/2006	-2.280457411
20/02/2007	-2.037719185
2/12/2006	-2.000864210
9/02/2007	-2.000089152
28/02/2006	-2.247806418

Red lines – actual daily prices and price movements.

Blue lines – difference between the estimated daily difference and the actual daily difference.

Bar graph – standardised residual of daily differences
Pink line – standardised actual daily differences

Annual Gross Overperformance	Compared to estimated asset allocation
Annualised MER	From PDS or client
Annualised interest on cash	Assuming interest at 6.00%pa
Annualised Tax on Fund	Estimated tax paid by fund
Imputation Credits	Estimated as 15 of Australian shares
Estimated Actual Overperformance	After adjusting

