

# How we determine the risk bands for the investment options in your super fund

The investment options available to members of super funds are classified into bands according to the relative level of risk of investing in each option. These risk bands are numbered 1 to 7 as per the table below. They provide a standard way of estimating the number of negative annual returns an investment option is expected to have over any 20 year period. This is called the standard risk measure, which is an industry based classification.

You'll see these risk bands listed in the relevant product disclosure statement or investment guide for each product. Each investment category listed now has a risk band number attached to it so that you can easily compare the relative risk of different options within those categories.

This document explains how we determined which risk band each investment option falls into and the assumptions we used in arriving at those classifications.

The standard risk measure is not a complete assessment of all forms of investment risk. For example, it does not detail the size of each negative return nor does it allow for the fact that the positive returns may be less than you may require to meet your objectives. Further, it does not take into account the impact of administration fees and tax when calculating the likelihood of a negative return.

You should still ensure you are comfortable with all of the risks and potential losses associated with your chosen investment options and shouldn't rely solely on the standard risk measure.

Details of our standard risk measure methodology are outlined below:

- The standard risk measure is calculated based on forward-looking long term return, volatility and correlation assumptions for the asset classes that make up the superannuation funds' investment options.
- Using Monte Carlo simulation<sup>1</sup>, 100,000 sets of annualized asset class returns are generated based on a multivariate normal distribution<sup>2</sup> utilising the Cholesky transformation<sup>3</sup>.

- The probability of negative returns over any year is calculated based on the event of negative returns in the Monte Carlo simulated results. These probabilities are multiplied by 20 to achieve the number of negative years in 20.
- The risk band and risk label is based on guidelines set out by the Australian Prudential Regulation Authority (APRA) as shown below:

Risk Band	Risk Label	Estimated number of negative annual returns over any 20 year period
1	Very low	Less than 0.5
2	Low	0.5 to less than 1
3	Low to medium	1 to less than 2
4	Medium	2 to less than 3
5	Medium to high	3 to less than 4
6	High	4 to less than 6
7	Very high	6 or greater

1 **Monte Carlo simulation:** A problem solving technique used to approximate the probability of certain outcomes by running multiple trial runs, called simulations, using random variables.

2 **Multivariate normal distribution:** A generalisation of the one-dimensional (univariate) normal distribution to higher dimensions.

3 **Cholesky transformation:** The transformation of a set of uncorrelated variables into variables with given co-variances. It is represented by a matrix that is the 'square root' of the co-variance matrix.

## Long term return/volatility assumptions

Long term return, volatility and correlation assumptions listed below are used in calculating the standard risk measure.

Definition and methodology of how the assumptions are calculated are outlined below:

Asset Class	Return (pa)	Volatility (pa)	Proxy Benchmark
Australian Equities	10.0%	13.6%	S&P/ASX 300 Accumulation Index
International Equities	9.5%	13.8%	MSCI World Ex Aust Acc In Gross Div A\$
Emerging Markets	11.5%	21.2%	MSCI EM GR AUD
Australian Listed Property	8.5%	12.1%	S&P/ASX 300 Property Trusts Accum Index
Global Listed Property	9.0%	13.6%	UBS Global Investors TR LCL (prior Sept 2004) UBS Global Investors TR Hdg AUD
Direct Property	9.0%	3.2%	Mercer/IPD Australian Pooled Property Fund Index
Global Listed Infrastructure	9.0%	11.2%	UBS Developed Infrastructure and utilities Accumulation Index (\$A Hedged)
Growth Alternatives	10.5%	7.1%	HFRI Macro Index
Conservative Alternatives	7.5%	6.0%	HFRI FOF: Diversified Index
Australian Fixed Interest	6.0%	3.6%	Aust Commonwealth Bond >10 years Accum (prior to Oct 1989) UBS Warburg Composite 0 +Years
Global Fixed Interest	5.6%	3.2%	Citi WGBI Hdg AUD (prior to Dec 1989) Barclays Capital Global Aggregate (\$A Hedged)
Diversified Income	7.0%	4.4%	50% UBS Credit FRN Index + 50% BarCap Global High Yield TR Hdg AUD (ML US High Yield Cash Pay Constrained Index (\$A Hedged) (prior to Jan 2002))
Cash	5.5%	0.5%	RBA Bank accepted Bills 90 Days (prior to Mar 1987) UBS Warburg Bank Bill Index

## Forward-looking returns

Long-term asset class return forecasts are, in the first instance, based on the consensus view of a survey of fund managers. This aims to ensure as much objectivity as possible in the forecasting process. These consensus forecasts will be overlaid with other qualitative considerations to ensure consistency across the asset class universe. For example, in some instances the sample size is non-representative, or may include inherent biases from some of the survey participants. The appropriateness of any material change, from the previous year's consensus results, is also a consideration. Long-term is assumed to be 10 years.

Please note: these long-term return forecasts are based on performance of the market benchmark (before fees). The alpha generated from active management is more than sufficient to cover the fees charged by the managers.

## Volatility (measured by standard deviation)

Risk is based on the past 20 years' average rolling five year standard deviation measures to December 2011 (with the exception of emerging markets and Australian fixed interest, which measures the past 15 years, as a result of historical structural changes to these sectors). Use of rolling five year averages aims to minimise the risk of short term significant increases or decreases in risk skewing the long term risk assumptions, at the same time avoiding the issues of picking discrete beginning and end dates for analysis.

## Correlations

Correlations between asset classes are an important factor in minimising risk. Two assets may have a similar expected return and level of volatility, however by combining them, the risk of the overall portfolio may be decreased through the correlation effect. Historical 20 year correlations to December 2011 have been used.