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This Week's Top Articles

Dividend imputation and super are worth fighting for

PJ Keating

In this third article which draws on my November 2012 speech to the ASFA Conference, I wish to say something about one of my favourite subjects, the company tax system.

Before I became Treasurer, company income in Australia was taxed twice: once at the company rate, at the time 46%, and then the dividends were taxed at the top personal rate of 60%. On $100 of company income, this left only $21 in the hands of the taxpayer!

In 1985, I changed the system completely and removed the double taxation of company income by introducing full dividend imputation. This meant that company income would only be taxed once. And this concession was reserved for Australian taxpayers.

People should understand that for Australian taxpayers, the company tax is broadly a withholding tax. The government collects it at the 30% rate on company income – and temporarily hangs onto it – before returning it to shareholders (including local superannuation funds) in the form of imputed credits.

In other words, when a company issues its dividends on a fully franked basis, it hands back the company tax paid earlier and staples it to the dividend.

This is my point. If the company tax rate is reduced from 30%, the principal beneficiaries will be foreigners, those who do not qualify for imputation credits. A reduction in the 30% rate, to say 25%, will diminish the value of dividends paid to superannuation funds and self-funded retirees. Such a move would effectively increase the rates of tax applying to superannuation.

The question is: do you know any foreigners you want to give 5% of our national company income to? Any deserving cases out there? Or should we leave the company tax rate where it is, as a withholding tax, for the promotion of Australian investment and for the benefit of Australian taxpayers?

I believe the superannuation industry should have a jaundiced view of reductions in the existing company tax rate but, more than that, remain vigilant in protecting 'dividend imputation'. Dividend imputation revolutionised capital formation in Australia. The Treasury was uncomfortable with it because of its cost to revenue, and about every seven years it promotes a debate to remove it.

I also wish to say something about the cost of capital.

Before mandatory superannuation, the equity risk premium in Australia was well above the OECD average. Today, it is well under it. Superannuation now massively underwrites capital formation in Australia. Indeed, one of the principal reasons the 2008 GFC was less severe for Australia was our ability, through the super pool, to rapidly and effortlessly fund $90 billion of company re-capitalisations. This would have been unthinkable in earlier financial crises.

This is another reason the Business Council of Australia and its constituency should continue to support the consolidation of mandatory superannuation to the point of maturity. This includes supporting increased levels of the super guarantee as discussed in previous articles. We need a national consensus on this. We need the Coalition to take co-ownership of the system with the Labor Party, and we need the business community's support for them to do it.

Superannuation is about de-risking the future. In the system I set up, people were encouraged to salary sacrifice in later life, when mortgages had been paid off and they had discretionary income. Under that policy, people could salary sacrifice up to $100,000 a year when over 50 years of age. I believe the current limit of only $25,000 is too low, certainly for those over 50.

This is where long term vision is important. While the government and the Treasury would see an increase in permissible voluntary contributions as a cost to the Budget in revenue forgone due to reduced tax revenues today, such increased limits would provide the government with certainty in the later years by reducing its future funding obligations. This was one of the original intentions when the foundations for the current superannuation system were laid over 20 years ago.

Hon Paul Keating was Treasurer of Australia between 1983 and 1991 and Prime Minister between 1991 and 1996.

Is APRA's Standard Risk Measure helpful?

David Bell

Investors may have noticed that super fund Product Disclosure Statements (PDSs) now include a measure of risk called the 'Standard Risk Measure', or SRM. The intention is to provide greater risk disclosure for retail investors. I encourage people to be very careful when reading such disclosures and to think about risk in more ways than is simply described by this measure in the PDS.

The SRM was introduced by the Australian Prudential Regulation Authority (APRA) in 2011. It is a self-assessed estimation by the product provider of the number of times over a 20-year period that a fund is expected to deliver negative returns. For example, an Australian equity fund might appear in a High Risk band because it is expected to generate negative returns in 5 out of every 20 years. However, a fixed income fund might be in a lower Medium Risk band because negative returns occur only once every 2.5 years. APRA sought market feedback prior to implementing the SRM but the original version was adopted unaltered. The proposal was supported by two industry groups which is an interesting story in itself that I discuss later.

Any effort to improve risk disclosure in retail PDSs is welcome. However, there has been considerable debate around whether this SRM represents a step forward or whether it creates a set of issues which exceed the benefits of greater risk disclosure.

I have many doubts about the SRM but focus on two in this article: the measurement itself and the calculation method.

There are many measures of risk in finance and no single risk measure is perfect. A mosaic of risk measures blended with experience and a qualitative appreciation is probably our best chance to understand risk. Each measure on its own provides useful information but is flawed. Using volatility alone assumes that we live in a world which is perfectly normally distributed. Using VaR (Value-at-Risk, an estimation of an adverse, statistically-rare outcome) effectively provides a data point around the loss in a rare event but leaves us with little knowledge about what will happen in an everyday environment.

Size of loss is more important than the frequency

There are two key elements to understanding risk: the size of an event and the likelihood of that event occurring. Consider how this applies to the SRM, where the size of an adverse event is ignored. An event is simplified to be any negative return. So a negative 5% return is not viewed any differently to a negative 50% return. Those approaching retirement prior to the GFC can vouch that a 50% negative has a major impact on their livelihoods. Indeed any investor would surely take three negative 5% return years rather than a single year of negative 50%, yet the SRM may in fact guide them to take the opposite position and only expect to lose money in one year.

There are some strategies which have a very low likelihood of loss but if they do lose, they lose substantially. Consider a fund for instance which sells out-of-the-money options. It may consistently make money year after year and then suddenly lose everything when an option is exercised. Such funds would quite correctly report a very low SRM, but I question if this is the outcome desired by APRA.

Too much subjectivity

The other main area of concern is implementation of the calculation, which is undertaken by the product provider, although APRA may review the calculation methodology. Even though there exists much science around calculating risk statistics, there remains much subjectivity. It is possible that two highly respected risk managers could look at an identical product and calculate a different SRM. And both calculations could be defended as having been calculated by a professional and backed with appropriate research.

This then creates a dilemma for product providers. Offered two different SRMs, there would be internal pressure to adopt the lower measurement, thereby making their product appear less risky and hence more attractive. There have already been some industry reports of similar products having different SRMs and of bond funds having a measure close to some equity funds.

I can empathise with APRA on this decision to have providers do their own calculations. Banks are required to calculate on a daily basis the amount of market risk they are taking (measured by VaR) which determines a capital requirement for market risk. Because the number of banks operating in Australia is relatively small, APRA is very hands-on in reviewing the calculation methodologies used by each bank. However, in the funds management industry, there are a huge number of products and fund providers and APRA has likely decided it is impossible to regulate this calculation closely.

But there were other implementation choices. A small team could have calculated the risk numbers, with the product provider given an opportunity to object. This may have led to greater consistency. Overall, the self-implementation approach reduces the ability of the SRM to be relied upon as a way of comparing products.

Lack of agreement between industry bodies

A particularly interesting aspect of the SRM debate has been the role of various industry bodies. Officially, the SRM is "the product of an ASFA (Association of Superannuation Funds of Australia) and FSC (Financial Services Council) working group, and is supported by ASIC (Australian Securities and Investments Commission) and Australian Prudential Regulation Authority (APRA)." However, the SRM was proposed by APRA prior to the creation of the working group. Many other industry bodies have criticised the statistic, notably AIST (Australian Institute of Superannuation Trustees), Actuaries Institute, and ISN (the Industry Super Network). It is confounding that these industry bodies can have such strongly opposed views, and perhaps leaves a question mark over the consultation process.

All up, while it is an admirable objective to improve risk disclosure, even given the difficulties of such a large universe of products and providers, I can only describe this as awkward regulation. I hope the Standard Risk Measure is not relied upon too heavily by retail investors.

Do we really need superannuation?

Andrew Bloore

It seems that no matter which way we turn, the government, regardless of which side of politics is in at the time, is stuck in a conundrum. As a nation, we have been told that the tax payer will not fund all our retirement, so we must save for ourselves, but the government has found it difficult to resist the temptation to increase superannuation taxes or wind back contribution limits.

Back in 1983, the Labor Government formalised the tax system on super and, with the cooperation of unions, started 3% award super (non-compulsory at that time). The framework commenced for a compulsory superannuation system which took 10 years to implement. We are better as a nation for it. Our country started down the path of a savings-based future rather than debt-based which we were facing in the days of the 'banana republic'.

The superannuation era is therefore relatively new for Australia. Compulsory super is only 20 years old, or just one generation. In previous generations, the first investment people made was usually in their own home. This is no longer true. The day someone enters the workforce, their first investment is the 9% of their salary that goes into super. People who are entering the workforce today are the first generation born into compulsory super. We used to be told by our grandparents that in order to retire with the same lifestyle as when you were working, you needed to put away 10% of what you earned. It is little wonder that compulsory super will soon be at that level.

So do we need super? What really is a retirement asset? It's not just me asking these questions. This was a focus of both the Henry Tax Review and the Cooper Review of superannuation.

A confronting statistic is that for every person on the age pension, we currently have about 7 people employed, but this number will fall significantly over coming decades, reaching about 3.5 people by 2042. After that, it is not expected to fall substantially more because the Baby Boomers will have passed away in large numbers by 2050, and the Gen Xers experienced a birth rate of less than two (ie there were fewer children than parents). Life expectancy depends on many factors such as the extent of further advances in medical science or rising obesity, but we know for certain that we will have a significant retirement funding problem for at least the next 30 years.

To put the outlay into perspective, the age pension for a male retiring at age 65 until normal life expectancy has a net present value cost of $400,000. In addition, it costs $440,000 for health benefits, giving $840,000 in total. This is our current age pension which we are told meets only subsistence living standards. Women are more expensive (no, not shoes!) because they are eligible for the age pension at a younger age and live longer.

We need super to reduce the future tax burden on those employed. Incentives must be provided to help us finance the next 30 years, targeted towards the retirees who this period directly affects. Otherwise, the remaining people who are in the work force will not be able to afford the increased tax required to fund the support system. Do we really want to create a nation where taxes are so high that there is no incentive to succeed, prosper and develop? There is benefit in being a tax payer if the money is well spent, and we must be careful to maintain the balance between overtaxing and taxation which creates value. This is a fine line.

Tax is inevitable, however, our administrators seem to have forgotten that our superannuation system is there to build a retirement asset. The legislative structure of our superannuation pension system says that all the money (plus or minus performance gains or losses) in the fund will be paid back to the people who put it in there and spent over their lifetime. Legislation entrenched that in the Simple Super changes in 2007. However, our age pension system needs to change to ensure people exhaust their own resources before drawing on tax-financed benefits. Tough call but change is needed. The Henry Review discussed this but no one was prepared to confront it.

There is no doubt that a larger tax base will be required over the next 30 years, but where from is the key. There are clear political problems in most alternative revenue raisers, such as an increase in the GST. For example, a 2% change in GST would fund the large majority of the current expenditure proposals but that’s not being considered.

The face of super is changing and will continue to do so. The expectation by 2020 is that we will have $3 trillion in super. Superannuation investments will change. We are likely have access to assets that we did not have before, such as an efficient mechanism for all super funds to invest in government or corporate bonds, or infrastructure projects, or investments that provide natural income streams rather than life offices actuarially creating them in a volatile market. We will have the ability through super to fund all of our banks’ home loans without foreign borrowing. Everyone is learning how collaboratively we can work together to ensure an effective investment and retirement system that benefits all.

So do we need super? Yes, absolutely. We can fund, grow and build a better nation together. We can better provide for the retirement of our people and reduce the burden on workers to support their forebears. Encouraging people to look after themselves, then taxing them for doing so, is not an appropriate answer.

The next five years of superannuation will be the most important of the coming 30 year conundrum. Let’s hope our legislators listen to all sides and create a balanced view.

Andrew Bloore is Chief Executive Officer of SuperIQ, a provider of administrative services for Self Managed Super Funds.

Self managed super's best kept secret

Graham Hand

If 'SMSF' were a corporate brand, its marketing department would be the most successful in superannuation history. Barely a day goes by without some media mention of the extraordinary success of SMSFs. A massive industry of advisers, accountants and technology providers has flourished, leaving the big fund managers with relatively minor roles. Among the barrage of statistics, where billions and trillions are more common than mere millions, is a startling fact. The big retail players always had a strong response to SMSFs in their kit bag. They just didn't explain it to their customers.

It's called the 'super wrap', and if promoted strongly, it could have saved at least $100 billion from drifting away from major fund managers into SMSFs, and in many cases, be a better investment platform for the client.

Super wraps are administrative platforms that give the control, potential lower cost and choice of an SMSF without the burden of becoming a trustee, setting up accounts and producing separate tax returns each year. They are available through most large retail funds, and industry funds such as AustralianSuper. In all these wraps, investors have access to ASX-listed securities, including the hybrids much-loved by retirees, a wide range of term deposits, good cash facilities and the widest array of managed funds anyone is ever likely to want. In some cases, close to a thousand funds. The only major asset class not available on a wrap is direct residential and commercial property. However, only about 15% of SMSF assets are in direct property, so this is not a limitation for most investors. In fact, a large, illiquid, undiversified asset such as property is probably not the best way to finance a retirement where regular drawdowns are needed in the pension phase.

At the end of each financial year, the investor receives one statement from the super wrap provider, and all the paperwork, corporate actions, tax treatments and cash flows have been covered. All investment management is carried out by clients and their advisers, while the super wrap handles custody and trustee obligations.

Despite the widespread availability of this product, the SMSF momentum shows no sign of easing, as the recently released ATO statistical report demonstrates. Sometime this year, the one millionth person will become a trustee of an SMSF, signing up at the rate of over 100 a day.

	Jun-12	Sep-12	Dec-12
Establishments	11,533	11,371	7,014
Wind ups	2,528	856	80
Net establishments	9,005	10,515	6,934
Total number of SMSFs	478,579	489,094	496,028
Total members of SMSFs	909,188	932,805	945,207

Equally impressive is the asset growth, now almost one-third of all superannuation and recently reaching $500 billion, growing far quicker than APRA-regulated funds. Industry consultant, Tria Investment Partners, estimates that 50,000 members of large funds depart for SMSFs each year, taking $17 billion with them in 2012. That's about 30% of large fund net inflows.

The missed opportunity for super wraps is emphasised by considering the natural progression for many people through superannuation. At one extreme are millions of disengaged investors who find superannuation jargon as confusing, and interesting, as molecular physics. The ANZ Bank Survey of Adult Financial Literacy for December 2011 found that only 69% of people even look at their superannuation statements, and one-third said they found them difficult to understand. Their super goes into default options with industry funds or multi manager options with retail funds, and they get on with their lives.

Three decades later, the other extreme kicks in. These once disengaged investors are now at the end of their careers, and their mates around the barbeque keep talking about self managed super. It has become as ubiquitous as German prestige cars and private school educations for those with medium to high incomes. Their accountant already handles the business and personal accounts, and he'll do an SMSF for a few thousand dollars a year more.

It's an extraordinary shift in responsibility that comes with an 80 page trust deed of obligations and the threat of severe penalties if they make a mistake. Members are trustees who must design an investment strategy and choose investments from an infinite array, often based on their cursory understanding of market fundamentals. They have to manage an administrative system, and take personal responsibility for understanding the rapidly changing rules of superannuation. At the stage in life when they were anticipating the prospect of a relaxing retirement, they are thrust into the world of non-concessionals, recontributions and TTRs. What on earth are they?

According to a 2011 ATO survey of SMSF trustees, the most common causes of difficulties managing an SMSF are that the laws and regulations keep changing, and there is so much to know and understand. The required skills can take years to acquire, if ever. The ATO, in its role as the regulator of self managed super, is taking an increasing tougher stance against funds that fail to meet their compliance obligations. The regulator regularly removes complying status from SMSFs due to breaches of laws and failing to lodge tax returns, and a non-complying fund is taxed at the highest marginal tax rate. The penalty taxes can be severe.

This is where the third way, super wraps, should have bolstered the retail and industry super funds' positions. They should have identified their vulnerable clients and warned them that SMSFs are not for all, and sold super wraps as a stepping stone, a learning path, to becoming a trustee and taking full responsibility for managing one's super. The most commonly cited reason for establishing an SMSF is to give control over investments, and for the majority, a super wrap does that. It's self managed super without a separate trust.

In fact, super wraps are often mistaken for SMSFs. When AustralianSuper launched its Member Direct wrap, the 2 February 2012 edition of *Investment Magazine* ran the headline, "AustralianSuper provides SMSF services to members." If large institutions marketed it properly, it's not a super wrap, it's a 'Self Managed Super Account'. It's the self managed super when a customer does not want the responsibility, administration burden and cost of becoming a trustee.

What’s the evidence that a decent proportion of SMSFs would consider a super wrap? At the 2012 ASFA Conference, consultants from Tria presented a session titled, “The Empire Strikes Back: can retail and industry funds provide a viable alternative to SMSFs?” After being asked why they had left a major fund and set up an SMSF, members were then asked, “If we had offered you a competitive SMSF solution, would you have stayed?” Nearly half the members said they were either ‘likely’ or ‘very likely’ to have stayed. Tria estimated retention could have been “perhaps a third or more of SMSF destined outflows.” And internal polling by a major stockbroker with a large SMSF client base showed about a quarter of existing SMSFs would not have set them up if they had known about the features of a super wrap.

Furthermore, 11% of SMSFs hold less than $100,000 in assets, and 22% less than $200,000. At these balances, the fixed costs of annual accountancy and administration expenses plus ASIC fees are a high percentage. It is on larger balances where SMSFs better justify their costs, because super wraps often have an administrative fee based on asset size.

Does the SMSF money find its way back to the major retail managers anyway? No. The ATO asset allocation statistics for December 2012 show the major classes are:

- listed trusts 4.1%
- unlisted trusts 9.1%
- other managed investments 4.8%
- cash and term deposits 28.6%
- listed shares 31.6%
- unlisted shares 1.1%
- non-residential real property 11.4%
- residential real property 3.5%

About 14% is invested in traditional managed funds. The big winners are the stockbrokers, the funding departments of banks and the real estate agents.

Obviously, a super wrap solution is not for everyone, as there are many who can genuinely benefit from the complete investment flexibility of a genuine SMSF. But we are talking about a million SMSF trustees here – the majority hold blue chip shares, cash and term deposits in their SMSF, which could be done within a super wrap, at a competitive cost for many and without the trustee and administrative burden. According to the ATO survey of SMSF trustees, the average amount of time per week spent managing an SMSF is 3.7 hours, or 4.2 hours in pension phase. That’s a decent round of golf, or a morning relaxing on the beach.

Which would you prefer, and what’s your time worth?

The insurance essentials

Rick Cosier

Protecting your wealth and standard of living is just as important as building it in the first place. Unfortunately history is full of real-life stories where people have suffered long-term financial hardship because they didn't insure against unexpected death or disability. You are gambling with your financial future if you do not have adequate insurance.

Death and disability insurance summary

Death cover helps your family members maintain their living standards if you die unexpectedly. It provides a lump sum that can be used to pay off debts and/or invested to meet cost of living expenses.

Total and permanent disablement (TPD) cover pays a lump sum should you become totally and permanently disabled through illness or injury. This covers expenses such as medical and rehabilitation costs as well as day to day living expenses. The key points here are that most policies dictate that you have to wait six months before making a claim, and that a medical practitioner has to sign off that you can never work again. For a white collar worker, this test can sometimes be difficult to prove.

Income protection insurance (otherwise known as salary continuance) provides a regular monthly income should you be temporarily unable to work because of illness or injury. There are a number of benefit periods and waiting periods to choose from. The benefit period defines how long you will get paid for (two years, five years, to age 65 for example), and the waiting period defines how long you have to wait before you can make a claim (30 days, 60 days, 90 days for example). A crucial point here is that it takes about a month for an insurance company to process a claim once they receive it, so you need to factor this into your calculations.

Unlike TPD, you only have to prove that you are unable to work at the time of the claim. In order to make sure that you are still disabled, you will be required to consult a medical practitioner on a regular basis during the benefit period. The payments stop as soon as you are judged to be well enough to return to work, or until the benefit period ends.

Trauma insurance pays you a lump sum if you are diagnosed with specified medical conditions (e.g. a heart attack, stroke or cancer). This avoids financial stress during the period of recuperation when home modifications and specialist medical attention may be necessary.

Getting the mix right

Part of the difficulty in choosing the most appropriate insurance is that these four policies can overlap, and unless you have a lot of money, you will probably have to make some choices.

If you have a home loan and a family to consider, you need more life insurance (death cover) than someone who is single and renting. It would really ease your family's financial position if the home loan was paid off and they also were left with a lump sum that could be invested to generate an income stream. Whilst singles or couples without children should not need as much cover as families, there will be debts to be paid off, solicitor's fees and funeral expenses to consider.

In most cases, it makes sense to have both TPD and income protection insurance. A major reason is that you may suffer a disability that is not permanent and doesn't kill you. You lose your monthly income which makes it hard to cover your expenses.

Income protection is a must for anybody who needs to maintain cash flow and doesn't have substantial savings to draw on in emergencies. So even if you are single with no dependants, you still need to feed yourself and pay the rent.

Trauma insurance is probably the hardest to assess. The cost is elatively low when you are younger but rises stratospherically once you reach your late 40s, just when you may need it.

On balance, your disability insurance should be structured so that you receive a lump sum upfront to pay for big ticket expenses if you are permanently disabled, but also include some salary continuance insurance to replace your income so that you can meet your day-to-day living expenses. A small amount of trauma insurance is also advisable for disabilities that involve upfront expenses but don't stop you working for a long period (breast cancer, heart attacks, for example).

You should also remember that insurance is designed to protect your cash flow and assets if unforeseen circumstances occur. Insurance should give you peace of mind so you can live comfortably and provide for your dependants without worrying. Your strategy should be to pay off debts and build wealth so that as time goes by you need less insurance not more. Insurance costs rise significantly as you get older, and become very expensive in your 60s. If you are paying for your insurance via your superannuation, you need to recognise that insurance premiums are depleting your retirement funds. At some stage, you may have to make a decision about whether the potential benefit is worth the cost.

Arranging your policies – inside or outside super?

The first step is to find out what insurance you have already. If you are in an employer or government super fund, you will usually have been allocated some death and TPD cover, and sometimes income protection as well. Bear in mind that in most circumstances you are paying for this out of your super balance. It is not usually 'free' unless you have a generous employer.

There are three primary benefits of insuring via super:

- the premiums are paid from your super balance rather than your after-tax income which is usually more tax-effective. You are using money that has only been taxed at 15% rather than your PAYG tax rate which could be as high as 46.5%, although you are depleting your super balances
- you are using money that is normally inaccessible until you are at least age 55
- you don't have to dip into your everyday living expenses to pay the premiums.

Group insurance via an employer super is usually cheaper than arranging a separate individual policy. You also don't have to take medical tests for the allocated cover.

Insurance policies via a personal super plan are usually more expensive than a group policy, but there are some exceptions. Group rates are often the same for smokers and non-smokers, but personal policies quote different rates. Non-smokers may be better off with a personal policy.

Insurance policies arranged outside super can give a lot more flexibility. For example, you can choose your insurance company, and there is more product choice. Insurance policies have different definitions for disablement so you can choose the policy which best suits your needs. The big disadvantage with stand-alone policies is that you have to find the money from everyday living expenses. This gets progressively more arduous each year as premiums rise with age.

Many advisers recommend death cover and salary continuance via super, plus a stand-alone TPD policy. In most cases, super fund members get allocated equal amounts of death and TPD cover. There is no reason why this should happen, and it does have some disadvantages. For example, if you make a successful TPD claim, the payout automatically reduces the value of your policy so that you will receive less money when you subsequently die. Another disadvantage is that a successful claim from a super TPD policy involves two steps: first, acceptance of the claimed, and second, getting the money out of super by proving you have met a 'condition of release'.

Working out how much insurance you and your family need is no easy task. It's tempting to 'cut out the middle man' but a good financial adviser will have access to a range of insurance solutions and will individually tailor a selection of insurance policies to fit your specific circumstances.

Why you should know the difference between arithmetic and geometric investment returns

Aaron Minney

The most commonly quoted statistics in investing are historical average investment returns. But are we talking about arithmetic means or geometric means of those returns, is it uniform across the industry and does it matter? It's vital to understand this to analyse past results correctly.

First, some definitions:

- **Arithmetic returns** are the everyday calculation of the average. You take the series of returns (in this case, annual figures), add them up and then divide the total by the number of returns in the series.

- **Geometric returns** (also called compound returns) involve slightly more complicated maths. The geometric mean is calculated by multiplying all the (1+ returns), taking the n-th root and subtracting the initial capital (1). The result is the same as **compounding** the returns across the years.

The arithmetic mean can never be less than the geometric mean.

A simple way to explain the difference is by taking the numbers 2 and 8. The arithmetic average is 5, being (2 + 8)/2 = 10/2 = 5. The geometric mean, on the other hand, is 4: exactly 20 per cent lower. This is calculated as √(2 x 8) = √16 = 4.

The last 33 years of the S&P/ASX 200 accumulation index provides a relevant example of investment returns:

	x0	x1	x2	x3	x4	x5	x6	x7	x8	x9
1980s	+48.9	-12.9	-13.9	+66.8	-2.3	+44.1	+52.2	-7.9	+17.9	+17.4
1990s	-17.5	+34.2	-2.3	+45.4	-8.7	+20.2	+13.4	+14.7	+10.3	+16.1
2000s	+5.2	+10.4	-8.8	+14.6	+28.0	+22.8	+24.2	+16.1	-38.4	+37.0
2010s	+1.6	-10.5	+20.3							

Source: Bloomberg

The arithmetic mean of these returns is 13.9% per annum. The geometric mean can be calculated from the index levels of 1000 on 31 December 1979 and 37,134.5 on 31 December 2012 and is 11.6% per annum. In other words, if the investment return were 11.6% every year from 1980 onwards, and you compounded the result, you would have grown your capital to the same extent as the index over the same period (ignoring cash flows, taxes, fees and so on).

This annual 2.3% gap between the arithmetic (13.9%) and geometric (11.6%) means is a big difference! If the index in fact grown at 13.9% each year compounded, it would have finished 2012 at 73,330.2, nearly double the actual value of 37,134.5.

Volatility, risk and average returns

The gap is caused by volatility. The more volatile a stream of investment returns, the greater the difference between the two measures. Let's calculate the gap over two years for three hypothetical investment return scenarios:

1. two years of zero returns (0, 0)
2. up 10% in the first year and down 10% in the second (+10, -10)
3. up 20% in the first year and down 20% in the second (+20, -20).

The arithmetic average of each of these scenarios is 0% per annum (over-weighting the effect of gains and under-weighting the effect of losses). The geometric mean of each is different, being:

1. 0% per annum
2. minus 0.5% per annum (your capital goes from 100 at the start to 110 in year one to 99 in year two, so you have lost money)
3. minus 2.0% per annum (you have lost even more money).

If you are looking at a share investment, where the standard deviation of volatility can approach 20% per annum, the gap between arithmetic and geometric means can be significant. A 7.5% arithmetic average annual return, with 20% per annum volatility, will translate into a compound return of 5.9% a year (ie what actually ends up in your pocket over the longer term). This gap is what volatility costs the investor.

Not the risk premium

Don't jump to the wrong conclusion that the gap is part of the risk premium. If you are comparing the returns on a risky asset with those of a risk-free asset, you need to consider the end result for both assets; that is, use the geometric return.

Any risk premium, which the investor demands to be paid to accept risk, needs to be above the compound return of the risk-free asset. Also, if you measure historical risk premiums (what was actually received) you should be careful to use compounding and not take a simple average.

The calculation of the historical risk premium can be problematic. Consider the same 33-year period from December 1979 until the end of 2012, this time for the return on Australian bond investments. Using a combination of the Commonwealth Bank Bond Index and the UBS Composite, bonds returned a compound 9.6% per annum over that period. The arithmetic average return was 9.9% per annum.

The trap for the unwary, in looking at the equity risk premium, is to calculate the return difference every year, and then average that risk premium. This is the same as estimating the equity risk premium from our 33-year sample period as 4.0% per annum (from 13.9 - 9.9 = 4.0) when it is only 2.0% per annum, using the geometric returns (11.6 – 9.6 = 2.0). If our sample 33-year period is anything to go by, this 2% is the risk premium that will compound over time.

The right set of scales for 'weighing' returns

Self-directed investors are well-advised to ask themselves, or their advisers, how their investments have performed over the preceding 12 months and longer periods of 3, 5 and 10 years (or longer). Take an SMSF trustee without access to the necessary advice or tools. How do they do this? If they compile a spreadsheet with each return from the relevant periods and then simply average them, chances are they are over-estimating their returns.

A point-to-point measure of how an index has moved over a 12-month period is what it is. However, it is easy enough for a self-directed investor to average these 12-month measures incorrectly (ie using a simple arithmetic mean) over multiple periods and, even worse, using the result to estimate future wealth accumulation.

Investing is a journey across many financial periods and calls for a way to 'weigh' those returns properly. The geometric mean is the appropriate set of scales for this job, at least until you look at the difference between time-weighted and money-weighted returns, but that is a topic for another day.

Aaron Minney is Head of Retirement Income Research at Challenger Limited. He was assisted in preparing this article by Senior Research Analyst, Liam McCarthy.