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Dynamic Asset Allocation Handbook

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Part 1

Part 2

Executive Summary

Tipping Points - The main change to the Tipping Point Tables this quarter has come from the substantial market correction. The end result is that most asset classes are a long way from being overpriced. This remains a good time to be fully invested.

Asset class	Index & Index level	10-yr return (f) %pa	Status	Asset allocation implications
Australian Equities	All Ords 5172.6	11.1%	Cheap	Risk premium greater than 5% per annum. Overweight this asset class compared to neutral weights
Developed Market Equities	S&P500 1979.9	7.9%	Fair Value	Risk premium between 2.5% and 5% per annum. Underweight this asset class compared to neutral weights. Can be at neutral weights if US stocks are avoided or held at very low levels.
Emerging Market Equities	FTSE EM 518.7	11.1%	Cheap	Risk premium greater than 5% per annum. Overweight this asset class compared to neutral weights
A-REITs	ASX REIT 1230.2	7.7%	Fair Value	Risk premium between 2.5% and 5% per annum. Underweight this asset class compared to neutral weights.

Editorial - The end of the mining boom, a sharp fall in Capex, and a likely slowing of residential property construction means that Australia is more at risk of a recession than any time since 2008. If one occurs, it is likely to be shallow and not affect the long-term forecast for Australian equities which does factor in a recession occurring sometime in the next ten years.

Further, a recession would not be a sell signal. By the time we know that a recession is upon us, the market will have already fallen to even better prices than we see today. If we don't see a recession, current prices will most likely be close to the low point of this cycle.

Forecasts in focus - We review the long-term outlook for Australian equities which can only be classified as Cheap at present. The banks look very attractive following recent falls. The resources remain fundamentally difficult to forecast and may equally prove to be a bargain or a trap. The main change to the forecast assumptions has been a reduction in the target PE ratio from 17.5 to 16.7 times earnings as a result of a bottom-up review.

Crockpot - There has been much talk of a bursting of an Australian residential property bubble leading to a recession. We find this unlikely in the absence of a major oversupply of new property. Prices are stretched but unlikely to fall precipitously. Even if they do, a recession is unlikely to follow in the absence of overly aggressive bank lending to developers and investors.

Tipping Point Tables

These Tipping Point Tables summarise the outcomes of the farrelly's forecasting process and in particular, how the farrelly's forecasts would change as markets change.

Australian Equities		Developed Market Equities		Emerging Market Equities		A-REITs	
All Ords 5,172.60	10 year F'cast return	S&P500 1979.9	10 year F'cast return	FTSE EM 518.7	10 year F'cast return	ASX REIT 1230.2	10 year F'cast return
9500	2.3%	2900	3.4%	1000	3.1%	1700	3.1%
9000	3.0%	2800	3.8%	950	3.6%	1650	3.5%
8500	3.8%	2700	4.2%	900	4.3%	1600	4.0%
8000	4.6%	2600	4.7%	850	4.9%	1550	4.4%
7500	5.5%	2500	5.1%	800	5.6%	1500	4.8%
7000	6.5%	2400	5.6%	775	6.0%	1450	5.3%
6750	7.0%	2300	6.1%	750	6.4%	1400	5.8%
6500	7.5%	2250	6.4%	725	6.8%	1375	6.1%
6250	8.1%	2200	6.6%	700	7.2%	1350	6.3%
6000	8.7%	2150	6.9%	675	7.7%	1325	6.6%
5750	9.4%	2100	7.2%	650	8.1%	1300	6.9%
5500	10.1%	2050	7.5%	625	8.6%	1275	7.2%
5250	10.9%	2000	7.8%	600	9.2%	1250	7.4%
5000	11.7%	1950	8.1%	575	9.7%	1225	7.7%
4750	12.5%	1900	8.4%	550	10.3%	1200	8.1%
4500	13.4%	1850	8.8%	525	10.9%	1175	8.4%
4250	14.5%	1800	9.1%	500	11.6%	1150	8.7%

Cheap	Fair Value	Fully Priced	Overpriced
Forecast 5%pa or more above TDs	Forecast 2.5% to 5.0%pa above TDs	Forecast 0% to 2.5%pa above TDs	Forecast return lower than TDs

The Tipping Point Tables are an excellent tool for illustrating the current valuation status of markets to investors. The more we pay, the lower returns we get; the less we pay, the better returns we get.

Currently, Australian Equities are rated Cheap, as shown in the green. They remain more attractive than Developed Market Equities, which are in the Fair Value range. This status is largely due to the outlook for US equities being much less attractive than most other markets – as discussed at length in the December 2014 Handbook. Where international equity investments are concentrated in assets with low US exposures, a full exposure is appropriate. Where exposures are via managers with close to index weights in the US, a less than neutral weight is appropriate.

Emerging Market Equities are rated Cheap. A modest overweight compared to neutral weight is appropriate.

A-REITs are at Fair Value hence a modest underweight position is warranted because better value is available elsewhere.

Exposures to risky assets should be around neutral weights. Enough asset classes are rated Cheap or Fair Value to warrant a fully invested position overall in risky assets.

Note on changing asset allocations

Where making changes to portfolios as a result of relative over or under valuations, the key is to move slowly. Generally, take between 18 months to two years to gradually implement a change. This is because valuations tell us nothing about when an asset is likely to over or under perform. Often, the forces that drive an asset to being very Cheap or Overpriced will persist well after an asset has moved to being either Cheap or Overpriced. As a result, it generally pays to stagger transactions over time when selling down or buying assets to take advantage of prices going from being expensive to very expensive or from cheap to very cheap.

Editor's Update

An Australian recession looms?

Volatility has returned to the markets - as we all knew it would, eventually. While the volatility has been a worldwide phenomenon, it has come at the same time as widespread discussion about the possibility of Australia entering a recession for the first time since 1990. Is this the start of something nasty, or should we just sit back and lap up the bargains?

Should investors even worry about a recession?

On the face of it, this may seem a silly question. Recessions are typically accompanied by severe bear markets where share prices fall by 30% to 35%. Pick the recession and avoid the bear market. However, this is not the reason we need to think about the impact of a recession. It is farrelly's experience that the best indicator of a looming recession is a collapse in equity prices. In other words, by the time farrelly's has worked out there will be a recession, the market will have fallen 30% or more. Picking recessions to avoid downturns is not part of the farrelly's philosophy.

The reason why farrelly's does worry about an Australian recession is the potential damage it could do to long-term Earnings Per Share (EPS) growth. The emphasis here is could do. Not all recessions are the same. Some produce lasting damage, others are just a normal part of the cycle.

An inventory recession or a balance sheet recession?

One of the main distinctions between recessions is whether the recession is caused by excess inventory or excess debt. The former is the most common. Essentially, it is caused by producers becoming overly enthusiastic about sales prospects, making way too many widgets until the warehouses become full of excess inventory. At this point, manufacturers call a halt to widget production and lay off their staff who, in turn, cut their purchases of other manufacturers' widgets and the economy stops growing until the excess inventory depletes.

These are normally relatively brief affairs. When the warehouse empties of excess inventory, staff are rehired and widget production recommences. An excellent example is the US housing market where from 2001 to 2006 there was excessive construction of new houses. When it became clear that there was two to three years of excess supply in the market, new housing construction plummeted and builders everywhere were laid off. Some 3 years later, the back log was cleared and housing construction started again. Because housing is a long cycle product, this process took some time. For most other goods, excess inventories are more like six to 12 months worth of sales. Obviously, these types of cycles clear much more quickly.

During these inventory recessions, some operators go to the wall, but most survive and come back leaner and more fit for business. It's nasty, but generally not too much long-term damage is caused. These recessions are part of the normal business cycle.

The balance sheet recession is a different kettle of fish. In a classic balance sheet recession, businesses and households take on too much debt, often to fund speculative activity, leading to bubbles. When the bubble bursts, a lot of bad things happen. Businesses cut back on investment and production and many go to the wall, leaving banks with very large losses. Regulators tighten up capital requirements and banks tighten up lending requirements. Both demand for and supply of credit slows. On the household side, investors lick their wounds, cut back spending and start saving more to repair their personal balance sheets. All of this takes a long time. A loan equivalent to 100% of salary takes 10 years to repay if the borrower saves 10% of their earnings. The depth of the shock means that most consumers - even those without debt - become more conservative with their spending and saving. The balance sheet recession is anything but a short, sharp shock.

Of course, all of this sounds very familiar. In the GFC, the US experienced both a balance sheet recession and an inventory recession. Deep, long lasting and painful.

Some recessions cause long term EPS growth damage.

Recessions are a normal part of the business cycle. A recent study by the Bank of England found that, historically, recessions in the US, UK, Germany and Japan, have occurred about once every eight years since 1970. In other words, over our 10-year forecast time horizon, we should expect to experience a recession. In fact, farrelly's does assume that there will be a recession for each of its ten year forecasts. The question is, will that recession have a larger than usual impact on actual EPS growth? Whether that recession occurs now or in five years really doesn't make much difference, it is the nature of the recession that matters.

The classic inventory recession reduces production, sales and profits over a year or two and then everything bounces back to normal. No long-term harm is done.

However, recessions can cause permanent losses where companies simply don't survive. More often than not, excessive gearing and asset speculation is the cause. There is possibly no better example than the New Zealand market in 1987 when the so-called entrepreneurs like Judge Corp, Renouf Corp and Allan Hawkins Equiticorp dominated the market. These highly geared speculators made up over 50% of the NZ market capitalisation; when they all failed, a huge part of the market earnings were taken away, never to return. Despite strong recent performance, the NZ market, and NZ equity EPS, are still below the levels of 1987. While, strictly speaking, NZ did not experience a recession in 1987, the impact was the same.

The second major way that recessions cause permanent losses is by forcing companies to raise capital which dilutes future earnings. The banks are prime candidates here. Loan losses are not like price or demand fluctuations where a poor result one year may be offset by a really good result the following year. Loan losses are permanent. They require capital to be raised to replace the losses in order to meet regulatory requirements; that

extra capital means extra shares for the same level of earnings, that is, lower earnings per share. Of course, the banks do allow for losses throughout the cycle knowing that they will vary based on economic conditions, however, it is the very high losses that hurt.

A second source of dilution for the banks occurs during periods of financial stress where despite having sound balance sheets, nervous investors and regulators require them to raise capital when share prices are low. Actual losses aren't required, just the fear of losses. However, this form of dilution is not as damaging when large actual losses occur. Australian banks that suffered from this form of dilution during the GFC are now trading at prices well above their 2007 levels while UK high street banks, such as Lloyds and Barclays, who suffered real losses, are still more than 70% below their 2007 prices, reflecting huge falls in their earnings per share as a result of massively diluting share issues.

Given that banks make up a very large part of the Australian market, the 10-year EPS forecast is more at risk from a severe recession than in many other markets.

An Australian recession in the next year or two?

The chance of an Australia recession in the near future is as high as any time since 2008. A number of forces are lining up, all of which have the potential to hurt GDP growth.

A slow down in China?

This is the most obvious suspect. China is Australia's largest trading partner and a strong influence on the other partners with whom we trade. A hard landing in China would hurt both the volume and prices of our exports which are largely rocks, iron ore and coal. Technically, for the purpose of calculating GDP, the price effect is ignored. All the falls in the prices of exports over the past four years have not directly impacted the calculation of GDP which is based instead on volumes. Other measures of economic activity, such as Gross National Income (GNI), do take price effects into account and have produced much lower estimates of Australian economic growth than the GDP figure that is the normal focus of discussion. Which is the better estimate is the subject of keen discussion amongst economists and the truth, as always, probably lies somewhere between the two.

Nonetheless, for the purposes of this discussion, we will focus on GDP where a fall in the volume of rocks exported could have a severe impact on GDP figures, regardless of how the price behaves. Currently, resources production makes up about 8.5% of GDP; if demand for resources fell by 10% over the coming year that would wipe 0.9% off GDP in gross terms. That's a lot.

How likely is this? farrelly's has no unique insight in this area. However, we note that much of the hysteria about the dire situation in China is centred on an unexpected slowdown in growth to around 5% to 6 percent per annum and the collapse in the prices of China A shares. These need a little perspective.

A growth rate of 5%, or 4% for that matter, is still, well, growth. Demand growth for our rocks may fall, but that is very different from actual demand falling. That is, we may not ship the volumes we expect, but they are unlikely to be lower than the volume shipped last year. Furthermore, we are perhaps fortunate to have the lowest cost producers of iron ore in the world. In the event that prices go sharply lower, Australian producers may

be among the last ones standing who are able to mine at a profit. In this environment, it is conceivable that their volumes may well increase. As result, we expect the impact on reported GDP of a slowdown in the rate of growth in China to be quite modest.

The second China story doing the rounds is the collapse in the Chinese sharemarket, despite the ham-fisted attempts of local authorities to stabilise prices. Context is really needed here. From October 2014, the Shanghai Composite Index rose 133% from 2209 to 5166 by June 2015. Since then, it has fallen 43% to 2964 at the time of writing. Over the past year, it is still up 34%, even after the fall. This makes it comfortably the best performing market in the world over the past year. Yes, the recent falls do reflect slowing growth in China but, more than that, the falls reflect a market that had completely lost touch with the fundamentals. In July, were Chinese companies really worth over double their value some nine months earlier? Are they really worth half as much today as they were three months ago? Does the size of these moves really reflect what is happening in the real economy? More likely, this is simply speculative excess being wound back and is quite unlikely to have much impact at all on the amount of iron ore and coal exported by Australia.

The Capex Cliff?

This one is real. Each quarter, the Australian Bureau of Statistics surveys a large number of companies to establish their capital expenditure plans over the coming financial year. The most recent survey released in late August indicates a substantial downturn in Capex in the 2015/6 financial year. The extent of the downturn appears to be set to take 1% off GDP growth. Given that GDP growth in the 2014/5 year is expected to be around 2.5% per annum - also with a small negative contribution from capex - this does point to even lower GDP growth in the year ahead.

The bursting of the residential property bubble?

See the Crockpot! In summary, housing prices do seem to be 10 to 20% too high but in the absence of excess supply or a sharp increase in interest rates, it is difficult to see these correcting quickly. At worst, we would expect a 10% to 15% fall in prices followed by a long sideways move. It's not really your traditional bursting bubble and very unlikely to cause a recession.

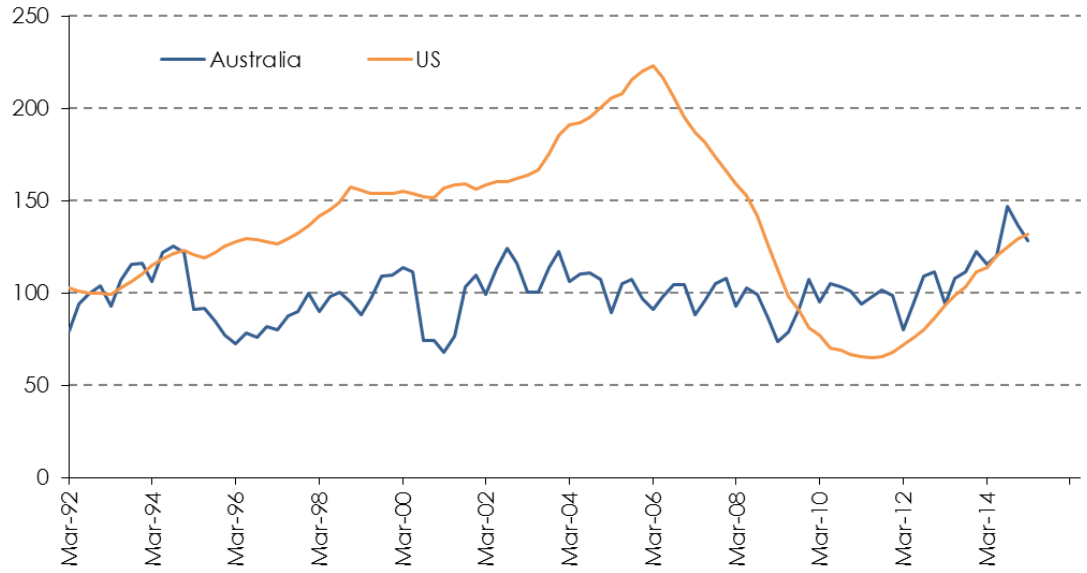
Of course, in the event that we did experience a severe recession and soaring unemployment, residential prices could fall faster than anticipated. But this note is about cause and effect. We don't see falling prices causing a recession, but they could still occur as the result of a recession. It's an important distinction when weighing up the chances and the impacts of a recession.

The end of the residential building boom?

This, on the other hand, is real. Residential construction has been a bright spot in an otherwise very slow economy. However, that is a two-edged sword. From Figure 1 on the following page, we can clearly see that residential building activity has been much higher in the past year or so than for many decades. Is this sustainable? farrelly's doubts it. In our view there has been an undersupply of property relative to population growth for many years. This boom in construction activity has largely closed the gap by farrelly's,

admittedly crude, calculations. While Australia doesn't appear to be in oversupply, further construction activity at this pace will, in all probability, lead to an oversupply situation but it may take a while.

Figure 1: New housing activity. (Base 1992 = 100)



Source: US Federal Reserve, ABS

Even if building continues at this pace for a few years, it is unlikely to create a huge excess supply of property. From Figure 1, it is clear that the level of activity is nowhere near the heights we saw in the US prior to the GFC where manic over-construction led to huge excess inventories and a long, painful contraction in both construction activity and housing prices.

We don't expect Australia to go down this path. However, not going down that path does suggest that construction activity will slow soon. In fact, a slow down already seems to have started. Recent data on housing approvals and housing starts are starting to fall. This is good news in the long term but it does have the potential to take another 0.5% to 0.8% off GDP growth in the coming year or two.

A crisis of confidence?

Regrettably, this is also real. The political process seems to have ground to a halt. Inane commitments from both sides of Australian politics seemed to have the government backed into a corner from which little positive is likely to emerge. The fact that interest rates are at record lows provides a perfect opportunity for the government to fund much needed infrastructure projects to restore confidence and cover the gaps left by likely falls in capex and residential property development. This seems unlikely given that both sides of politics have made running a deficit, even when needed, proof of irresponsible fiscal management when the exact opposite is the truth. When interest rates are very low and the economy is weak, spending on useful infrastructure projects is exactly what we need.

At a broader level, how much the loss of confidence in government impacts economic activity generally is difficult to assess, but it certainly is not helping.

The risk of recession is higher than usual.

The upshot of all of this is that Australia will most likely record very low economic growth over the coming year. The headwinds are clear but there are some positives as well. The fall in the Australian dollar will help, but the effects are likely to come though slowly. NSW appears set to conduct some meaningful infrastructure spending.

As a result, the risk of a recession is high but, in reality, there is not much difference between growth at +0.5% or –0.5%. Both aren't good, but neither is catastrophic. Whether a full-blown recession develops, and more importantly, what the long-term impacts on EPS will be are the real issues. The purpose of the discussion here is to lay a base from which to consider the impacts on various sectors of the sharemarket.

How badly could a recession hurt long-term EPS growth?

As we tend to do in this publication, we divide the market into three groups: the banks; resources; and the rest. This mix is as useful for this discussion as it is for considering our total return forecasts in the Forecasts in Focus section.

The Banks.

This is where the real risks lie. As discussed earlier, if we are facing a balance sheet recession with the prospect of soaring loan losses, we should expect a permanent hit to the banks' capital. Here are two major exposures to consider: what will losses be on the banks residential lending books; and what will be the losses on their commercial lending books?

Let's assume there is a 30% fall in the residential property market. It's unlikely, but let's assume it happens anyway. The conventional narrative is that the banks will be devastated as their loan books are dominated by residential property loans. The reality is very, very different.

To see why, it is important to look at the structure of the banks' residential loan books. Firstly, a large number of loans have been on the books for a number of years. A principal and interest loan taken out four years ago with a Loan to Valuation Ratio (LVR) of 95% would today have a LVR closer to 67%. This assumes that the loan has been paid down by around 8% and the price of the property has risen by 30% or more. A fall in housing prices of less than 33% leaves the bank untouched.

Most loans that are more than four years old are in even better shape.

To dive down a little deeper, we will look at the actual shape of the CBA's residential lending book as an example. Figure 2 on the next page looks at CBA's exposures and stress tests the impact on CBA's profits if residential prices fell by 30% and 10% of all loans defaulted. We see that 59% of loans have LVRs less than 60% and only 5% of loans have LVRs more than 90%. We estimate the percentage potential loss on any loan group in the event of a 30% fall in residential prices and also the loss in dollar terms if 100% of loans defaulted.

Figure 2 : CBA residential property losses with 30% price falls and 10% default rate (est.)

	Loan to value ratios					Total
	0-60%	60-75%	75-80%	81-90%	91+%	
Share of loan book	59%	20%	7%	10%	5%	**100%**
Loan volume ($bill)	183	62	22	31	16	**310**
Loan loss if default (prices falls 30%)	0%	5%	9%	17%	27%	
Dollar loss ($bill) if 100% default rate	0.0	3.1	2.0	5.3	4.3	**14.4**
Dollar loss if 10% default ($bill)	**0.0**	**0.3**	0.2	0.5	0.4	**$1.4b**

Source: CBA, farrelly's estimate

Because these are full recourse loans, a high level of defaults is unlikely. Australian banks, unlike their US counterparts, pursue defaulters for the rest of their working lives. Few borrowers default unless they really have no other choice. So, we divide the total potential loss by 10 to reflect an estimated 10% default rate.

The result is a total loss of $1.4 billion which would be sufficient to reduce CBA's pre-tax profit from $12.6 billion dollars a year to $11.2 billion or, if this sorry saga stretched over two years, a reduction in profit or just $0.7 billion per year. Not only would such an event not break the bank, it would have a very modest impact on long-term EPS growth for CBA. The other banks are in much the same shape.

That is not to say that such a fall would be completely benign. A second order effect is that falling prices would change the LVRs of existing loans which would require banks to raise more capital. We estimate that such a raising would be dilutive to the extent of around 10% taking 1% per annum off the growth forecast for banks. It's unpleasant, but hardly a killer blow and, as outlined in the Crockpot, it is highly unlikely in farrelly's view.

The second, far more dangerous source of loan losses come from the banks' commercial lending activities. An RBA study, "Credit Losses in Australian Banks, 1980 to 2013", found that a number of factors contribute to the size of loan losses during a downturn. Key factors contributing to very large losses included high rates of credit growth, lax lending standards, high interest rates and high levels of construction activity. The 1990 recession had all of these and produced the highest level of loan losses over the period studied.

The Australian economy is very different today. Credit growth has been slow, lending standards have been relatively tight, and interest rates are low and likely to go lower. Only construction levels are elevated. Even here, the outlook is not too grim. Banks have learned their lessons from the 1990 debacle and are more circumspect in their property lending practices. Loans are smaller, more emphasis is on backing projects with substantial presales and just the sheer quantum of projects is lower.

The end result is that we expect that a modest recession would have a minor impact on long-term bank profit growth.

Resources

Of itself, an Australian recession won't hurt long-term EPS growth prospects of resource companies too much, as prices are set by international markets and a recession may actually help them in the long term.

If one of the triggers for a recession is a fall in demand for commodities with a resulting fall in export volumes, strangely, the long-term impact for resource companies is all good. A sharp fall in prices and demand would result in the failure of high cost or overleveraged producers, the mothballing of future projects and the ability for the Australian operators to very aggressively tackle their cost base. All of these would results in higher 2025 profits than if we see growth in China merely slow rather than slump.

For Australian producers, a major fall in demand today means higher market share, lower worldwide capacity, higher prices and lower costs in 2025. A few may not make it, but they represent a small percentage of the market. This is really about BHP and Rio.

So, a recession ho;ds no long term fears for resource company earnings.

The Rest

Most listed businesses are continuing to struggle. Profits of small caps and mid caps are still well below 2006 levels. Most businesses are run leanly, and while none would welcome a slow down, it is unlikely to knock them out either. If we do see a recession, it is more likely to be of the inventory variety; excess activity in mining and housing being brought back to earth rather than a balance sheet contraction. In farrelly's view, a recession would be unlikely to result in a large number of Australian companies going to the wall or engaging in devastatingly diluting capital raisings.

In summary

The chances of Australia experiencing a recession have increased. However, any recession is more likely to be shallow and unlikely to have much of an impact on 10-year EPS growth as this sort of recession occurring some time over the next decade has been factored into the farrelly's forecasts.

A few comments on recessions and market timing.

Earlier in this Editorial, we suggested that using the likelihood of a recession occurring as a way of making market timing decisions was really difficult. By way of example, farrelly's thinks the chance of the Australian economy entering a mild recession in the next year or two is almost 50%. In the event we do see a recession, we could probably expect about a 30% to 35% fall in the Australian market. A 50% probability of a recession would imply a 15% to 17% fall in the market - in other words, exactly where we find ourselves today. The market also seems to be implying around a 50% chance of a recession.

Of course, those who do have the ability to detect recessions before the market possess an extremely valuable skill. However, in this field, many are called but few are chosen. And so it is for recessions themselves; over the past 25 years, many Australian recessions have been called, none have occurred. Those who acted on any of these calls have been left high and dry waiting for a correction that doesn't arrive on time. And then

what? Stay out of the market looking for a favourable re-entry point? For how long?

In farrelly's view, most will be far better off investing at times when value is on offer, such as now, and ignoring the warnings when they inevitably come. For most of us, the market will get there first. We just need to be able to ride the bumps.

farrelly's forecasts

Occam's Razor Approach to market forecasting

In 1991, John Bogle wrote his seminal paper "Investing in the 1990s: Remembrance of Things Past and Things Yet to Come." (*Journal of Portfolio Management*, Spring 1991, pp. 5-14.) He described what he called the Occam's Razor approach to forecasting, named after Sir William of Occam, who in the fourteenth century declared the simplest explanation is generally the best. The Occam's Razor approach to forecasting decomposes market returns into three elements: income; growth in income; and, the effect of changing valuation ratios. This can then be used to explain past returns and, more interestingly, forecast future returns with remarkable accuracy. The three elements combine to produce the following formula:

Returns = Income + Growth in income + Effect of changing valuation ratios

R = Y + G + V

Where:

Y is the current investment yield, a known quantity, hence no forecasting is required for this input.

G is the annualised growth in income or earnings for the asset. For:

Property, it is growth in rents

Equities, it is growth in Earnings Per Share

Fixed interest, growth is zero, by definition!

V is the Valuation Effect. It is the compound effect of an increase or decline in PE ratios or yields on the returns produced by an asset.

For example

For equities over a one year period:

V = (PE at end of period / PE now) –1

If PEs rose from 10 to 12 then:

V = 12/10 – 1 = 0.2 or +20%

For longer time periods, say 10 years, we use the compound growth rate:

V (%pa) = (PE at end of period / PE now)1/10 –1

Using the previous example, over 10 years:

V = (12/10)1/10 -1 = 1.0183-1= +1.83% pa

Why use 10-year forecasts? They are more accurate than short-term forecasts. EPS growth is steadier over 10-year periods than one-year periods. The effect of a change in PEs is much smaller over 10 years than one year, as we have just seen.

The long-term outlook for markets

The forecasts below are based upon the Occam's Razor approach outlined on the previous page. This approach to forecasting has many attractions – including accuracy, simplicity and transparency. By making available the underlying logic and assumptions (Figure 1 below), subscribers are able to quickly understand the rationale for the farrelly's forecasts and determine the effect of changing the assumptions.

Figure 1: Expected Returns, Yields and Risks for Asset Classes - Australian Domiciled Investors, September 201

	Australian Equities	Developed Market Equities	Emerging Market Equities	A-REITs	Secure Debt	At Risk Debt	Fund of Hedge Funds	Cash
Yield (pre tax)	**6.3%**	**2.4%**	**3.4%**	**4.9%**	**3.5%**	**6.4%**	**-**	**2.7%**
+Currency Impact	**-**	**1.1%**	**0.0%**	**-**	**-**	**-**	**-**	**-**
+ Earnings growth (f)	**3.8%**	**3.4%**	**4.7%**	**3.1%**	**0.0%**	**-1.5%**	**-**	**-**
+ Valuation effect	**0.9%**	**1.0%**	**2.9%**	**-0.3%**	**0.0%**	**-0.2%**	**-**	**-**
Index return	**11.1%**	**7.9%**	**11.1%**	**7.7%**	**3.5%**	**4.8%**	**2.7%**	**2.7%**
+ Manager value add	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**2.3%**	**0.0%**
Total Return (pre tax)	**11.1%**	**7.9%**	**11.1%**	**7.7%**	**3.5%**	**4.8%**	**5.0%**	**2.7%**
Total Return (15% tax)	**9.7%**	**7.0%**	**9.8%**	**6.7%**	**3.0%**	**4.1%**	**4.2%**	**2.3%**
Total Return (46.5% tax)	**7.0%**	**5.4%**	**7.1%**	**5.0%**	**1.9%**	**2.6%**	**2.7%**	**1.4%**
PE Now	15.2	18.2	11.7					
PE 2025 (f)	16.7	20.1	15.6					
Yield 2025 (f)				5.1%				
Indicative Index	All Ords	S&P500	FTSE -EM	ASX REITs				
Index Level	5,172.6	1,979.9	518.7	1,230.2				
Worst case scenarios :10 year REAL total return is less than...								
1 in 50 chance	-2.5%	-5.3%	-4.8%	-5.0%	-2.5%	-3.5%	-5.2%	-1.0%
1 in 20 chance	-0.1%	-4.0%	-1.5%	-3.0%	-0.9%	-2.1%	-4.0%	-0.9%
1 in 6 chance	2.4%	-1.4%	1.6%	-0.4%	0.8%	0.3%	-2.3%	-0.7%
Worst case short term scenarios: 1-year NOMINAL return is less than								
1 in 50 chance	-65%	-65%	-74%	-61%	-19%	-45%	-22%	0%
1 in 20 chance	-38%	-38%	-43%	-35%	-11%	-26%	-12%	0%
1 in 6 chance	-15%	-15%	-17%	-13%	-3%	-10%	-3%	2%
Frequency of years with negative returns								
1 year in	3.0	3.0	2.9	3.1	4.1	3.0	4.9	Never

Key assumptions (as at September 2015)

The Australian Equities forecasts assume:

1. Current dividends on ASX All Ordinaries, grossed up for franking credits.
2. EPS growth of 3.8%pa vs forecast inflation of 2.5%pa and real GDP growth of 2.7%pa.
3. PEs moving to 16.7, the long-run PE ratio forecast in a low real interest rate environment.

The Developed Market Equities forecasts assume:

4. Current FTSE All World Index yield.
5. Currency impact will equal the difference between the Australian 10-year bond rate and that of a FTSE World Index weighted basket of bonds. This is the return pickup that could be achieved by fully hedging currency.
6. EPS growth for Developed Markets of 3.4%pa, assuming global inflation of 2.0%pa, and real GDP growth of 2.5%pa
7. PE ratios at 20.1, reflecting very low real interest rates.

The Emerging Market Equities forecasts assume:

8. Current FTSE All World Emerging Market Index (LOC) yield.
9. Currency impact plus 0%pa (less than developed markets because of higher anticipated inflation in Emerging Markets).
10. EPS growth for EM of 4.7%pa, assuming inflation of 4.0%pa, and real GDP growth of 5.0%pa.
11. PE ratios at 15.6, a discount to developed market PEs.

The Australian REITs forecasts assume:

12. Current yield of ASX A-REIT index.
13. Distribution growth of 3.1%pa which includes the impact of rental growth, development activities and gearing.
14. Yield in 2025 of 5.1%pa, which is farrelly's estimate of the fair value yield for A-REITs.

The Secure Debt forecasts assume:

15. Yield is the 10 year expected return on TDs, with five-year TDs rolling over at 3.8%pa.

The At Risk Debt forecasts assume:

16. A well diversified portfolio equal to a mix of 50%BBB, 30%BB, and 20%B issues.
17. The pre-default yield pickup is 3.9%pa versus government bonds.
18. The impact of defaults will be equivalent to -1.5%pa.
19. Assumed impact of lower reinvestment rates in 5 years is -0.2%pa.

The Cash forecasts assume:

20. Government bond yields plus 0.1%pa.

The Fund of Hedge Funds forecasts assume:

21. Cash plus a premium for fund manager value add (alpha) of 2.3%pa.

For Returns we have assumed:

22. Returns for Australian Equities, DM Equities, EM Equities, A-REITS, Debt and Cash reflect index returns. No allowance has been made for the impact of active management. This can be done using the Implementor software.

The long-term outlook for Australian equities

Fear is back in vogue. Chaos in our biggest trading partner, collapsing commodity prices, a housing bubble threatening to burst, an ineffective and accident prone government, rising unemployment, disappointing earnings results, tumbling bank share prices and the threat of a worldwide recession hardly make for an encouraging outlook for equities.

Long-time subscribers will not be surprised to hear that despite all of this, farrelly's is more positive about the outlook for Australian equities than any time since the height of the European debt crisis in June 2012 when the All Ordinaries was at 4116, more than 20% below current levels. Of course, this is because the forecasting process looks through the current news and envisages how the market may look in ten years using the Occam's razor process.

We look at the outlook for earnings per share (EPS) growth and Price Earnings (PE) ratios over the next decade to derive a return forecast. The analysis points to Australian equities still being very attractive despite the current round of fears. As always, there is a chance that not only are current fears realised, but that they have a bigger impact than expected. The forecasts are not a guarantee and things could turn out much better or worse than we expect. Accordingly, the risks to these forecasts will also be highlighted.

Earnings per share growth.

A fundamental assumption supporting the idea that equities will provide good long-term returns is that earnings grow over time and share prices grow with those rising earnings. To a large extent, this is simply a function of companies retaining and re-investing some of their profits to expand their capital base and their earnings potential. In the medium term, companies' profits fluctuate around those potential earnings in line with the business cycle; sometimes earnings are booming, sometimes they are depressed.

Both aspects are captured in our long-term forecasting process. We look at the likely growth rate of potential or trend earnings per share and then assess whether earnings are above or below trend. When earnings are above trend, we expect slower than usual future growth, and when they are below trend, we expect higher than usual growth.

We also look at the sub-sectors of the market to test whether, on a bottom-up basis, the forecasts look reasonable.

Trend earnings per share growth

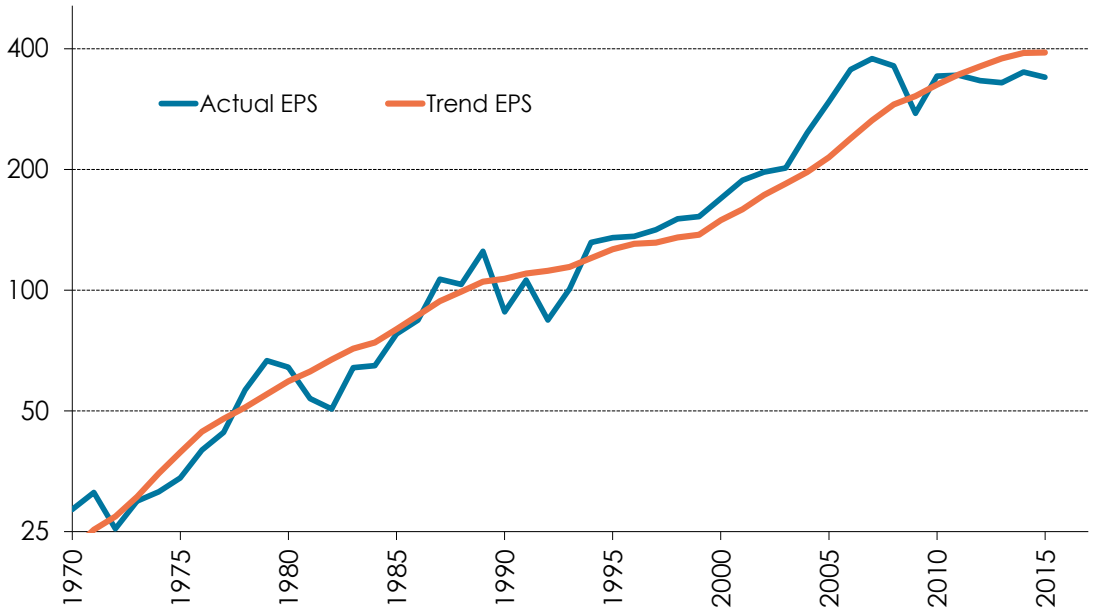
The approach to forecasting trend EPS growth is based on the assumption that Return on Equity (ROE) should be mean reverting; that is, ROE will fluctuate around a sustainable level. Given that ROE is EPS divided by Book Value, then, in the long-term, EPS will only grow as fast as Book Value. In turn, Book Value grows by successful reinvestment of retained earnings. We assess the level of earnings retention and then

add in an allowance for inflation increasing the value of some, but not all, corporate assets. The allowance for inflation is because some assets such as land and brands should grow with inflation – whereas others, such as cash and depreciable equipment do not. Empirically, we find that EPS seems to grow at the same rate as reinvested earnings, plus 50% of the rate of inflation.

Looking back over the past 100 years, given that companies had an average PE of around 16 times earnings and reinvested half of their profits, we would expect Book Value would grow at about 3% per annum without considering inflation. If we add in half the observed 3% rate of inflation, we would get an expected growth in book value, and therefore earnings and dividends, of 4.5% per annum. And that's pretty close to the observed rate of EPS growth over that time, which equates to around GDP minus 2%.

To arrive at a forecast for the trend or sustainable growth rate for Australian equities, we assume that, on average, PEs will be at 16.7 and companies retain 35% of profits. This implies growth in Book Value of 2.1% per annum if all retained profits are invested wisely. They tend not to be; so we assume 20% of reinvestment will be wasted leaving growth of 1.7% per annum which, when added to half our expected inflation rate of 2.5%, leaves us with a 2.9% per annum rate of trend EPS growth.

Figure 1: Australian Equities - Growth in actual and trend EPS



Source: ASX, farrelly's analysis

Adjusting for cyclical peaks and troughs

In the medium term, EPS moves with the economic cycle, sometimes growing faster than trend, sometimes growing more slowly. The end result is that, at times, earnings are higher than trend and, at other times, they are lower than trend, as is shown in Figure 1.

As is seen in Figure 1, when actual EPS moves ahead of trend EPS, it generally falls back to trend over time, hence EPS grows slower than trend. Similarly, when EPS is behind trend, growth is faster than trend going ahead. In other words, this is a standard mean-reverting process. This makes sense; it is how capitalism works. When profits grow rapidly and ROE soars, we get investment, more competition, substitution and eventually, over-investment, until such time as profits fall to more normal levels. Similarly, if profitability is at low levels, we get underinvestment and reduced competition until such time as profits again rise. If it's not overinvestment, it is higher wages that eat away at profitability, or higher taxes, or the impact of depreciating currencies, or offshore competitors. We don't need to know what the cause may be, just that it is likely that something will bring margins back to more normal levels.

In order to judge where profits are in the cycle, we calculate cyclically-adjusted earnings and compare those to current earnings. We also compare current ROE to our estimate of sustainable ROE of 13%.

Currently, we estimate Australian company profits are 10% behind the long-term trend; for this to be recovered over the next decade requires a catch up of 0.9% per annum.

As is outlined in Figure 2, the end result of all of this is a forecast of EPS growth for Australian equitiess of 3.8% per annum for the next decade.

Figure 2 : Forecast EPS growth for Australian Equities 2015 to 2025

Component	Forecast
Reinvested earnings less 20% wastage	1.7%
+ half inflation (2.5%/2)	1.2%
Trend earnings growth	2.9%
+ EPS return to trend	0.9%
Nominal EPS growth	**3.8%**

Source : farrelly's estimates

Bottom up EPS growth forecasts.

In order to check the top-down forecast from a bottom-up perspective, we make a crude break-up of the Australian sharemarket into three parts; about 30% of the index are banks, 15% resources, and 55% the rest, which could be somewhat loosely described as industrials. For the purposes of this discussion, we see non-bank financial services companies such as life insurers and fund managers as being more like other industrial enterprises than banks and so include them in "the rest".

The banks

The golden era for bank profit growth is probably well behind us. The next decade's profit growth will probably be around 1% per annum, much lower that the last few decades where growth of 5% to10% per annum was the norm.

From farrelly's perspective, the simplest and best way to think about bank EPS growth is to focus on ROE. If banks earn 14% ROE on average, which is higher than the market as a whole, and pay out 75% of their profits as dividends, they will increase their equity by 3.5% per annum. If they maintain a 14% ROE, that means profits will also grow by 3.5% per annum. However, there are some things that can get in the way.

Firstly, to have their capital grow by that amount, they will need to earn that 14% ROE on average over the full 10 years. However, as was discussed in the Editorial, we assume that there will be a recession somewhere over the next decade. If, during that recession, profits halved and the dividend was maintained, then half the profit, 7%, is not available to expand the capital base which will reduce the 10-year growth of both capital and EPS by 0.7% per annum. A bigger, one-off profit downturn would result in a bigger drag on profit growth. Hence the focus in the Editorial on the impact of different types of recessions; it is the nature and the depth that matter, rather than whether there is a mild recession or a near miss.

Secondly, Australian banks are raising capital to meet the new APRA guidelines. Estimates vary as to how much extra capital will be needed. Most estimates are that the banks will need around 15% more capital to support their existing levels of business. That implies 15% more shares for the same level of earnings and that means that EPS will fall by 15%, taking another 1.5% per annum from EPS growth.

Finally, the margins the banks make on their existing business lines may change. With cost to income ratios of less than 45% it is difficult to see much more improvement on costs. Loan loss ratios are low currently and a return to more normal ratios could easily slice another 5% from profits and, by extension, 0.5% per annum from 10-year earnings growth.

It is not all headwinds for profit growth. The banks intend to lift margins on loans in order to offset the extra capital requirements. However, their ability to fully compensate may be limited by competition from regional banks and a return to the market of alternative mortgage providers. Also on the plus side, the banks do have some businesses providing organic growth such as their wealth management arms.

The end result is we expect the banks to achieve very modest EPS growth over the next decade – around 1% per annum. This forecast will probably be pretty close to the mark unless the next recession, if and when we have it, is much deeper and more severe than the somewhat shallow recession envisaged in the farrelly's base forecasts.

The Resources sector

As a complete contrast to the banks, predicting profit growth in the resources sector is notoriously difficult. Production is still growing rapidly, but will it slow or go into reverse as a result of China's woes? Will depressed commodity prices continue to sink or can they rebound somewhat? Where does the Australian dollar go to from here? Finally, how far can production costs be reduced? It's a complex mix and the end result is that EPS growth for resources is fundamentally difficult to forecast.

Our best guess is that 3% per annum EPS growth represents normal growth for resource companies (if there is any such thing), but that it will come in at lower than that over the

next decade. But that is really just a stab, if not completely in the dark. Recent Macquarie Equities research forecasts EPS for resource companies rebounding on the back of a recovery in the oil price towards US$70 bbl. This probably is wishful thinking. If resource prices remain at current levels for the next three years then EPS for BHP, for example, could fall another 66% from 2015 levels over the next few years. It is just very difficult to confidently predict resource EPS growth.

The rest

The rest of the market should show above trend growth simply because earnings are well below trend right now due to the sluggish growth in the economy. In the long term we believe that 13% is a sustainable level of ROE. Focusing on the mid-cap stocks, which currently have an ROE of around 9.1%, suggests that sector of the market can grow its earnings at the rate at which capital grows, say 2.8% per annum plus the growth that comes from a cyclical return to a more normal level of profits. We estimate that cyclical swing back to normal profitability for the mid-caps to be worth about 4.0% per annum in extra growth for a total EPS growth of 6.8% per annum from today's depressed earning levels.

As discussed in the Editorial, this profitability would be further reduced in the short term should we experience a recession. However, over the course of the next decade, a restoration of profitability to more normal levels is a reasonable assumption.

Figure 3 : Bottom up forecast EPS growth for Australian Equities 2015 to 2025

Sector	Weight	Core EPS growth (%pa)	Return to trend (%pa)	Forecast EPS growth (%pa)
The banks	30%	3.0%	-2.0%	1.0%
Resources	15%	3.0%	-6.0%	-2.9%
The rest	55%	2.8%	+4.0%	6.8%
Average		**2.9%**	**+0.7%**	**3.6%**

Source: farrelly's estimates

The end result of this bottom up forecast for earnings growth is outlined in Figure 3.

The overall result is consistent, if not identical, with the top-down forecast. That is close enough to suggest that we are on the right track.

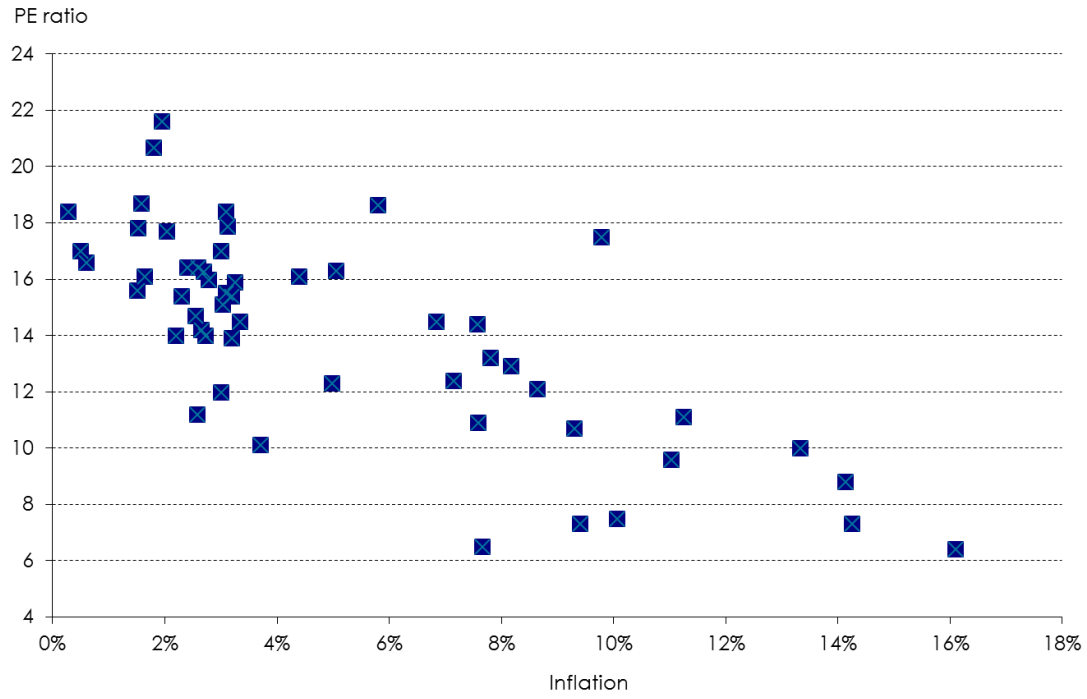
How much do we have to pay for earnings?

A good way to think about the PE ratio is to ask, how much do we have to pay for a dollar of earnings? And, as we see in Figure 4 overpage, it can vary dramatically.

The variance in the PE ratio depends on a raft of different factors including inflation, interest rates and market sentiment. In the past few years, PEs on the Australian market have varied from almost 20 in 2007 to below 10 in early 2009 and, over the longer term, the range has been even larger. Much of that range is explained by inflation. When inflation rises, PEs tend to fall and when inflation is under 4%, PEs are generally in the 14 to 18 range, apart from brief, sentiment-inspired breaks above and below that range.

We continue to believe that a return to high inflation is unlikely both in Australia and in much of the developed world. Accordingly, PEs are likely to spend most of the time over the next decade in the 14 to 18 range. In selecting where in that range PEs may end up, we again break the market up into the resources, banks and the rest to get a bottom-up perspective.

Figure 4: Australian PE ratios vs. inflation (1961 - 2014)



Source: Cowan Investment Survey, ABS, ASX.

Bottom-up PE forecasts

In looking at bottom-up PEs, we need to be mindful of the structure of the index and the constituent parts. The Australian market has large weights to banks and resources stocks which makes it somewhat different from other markets. In thinking about likely PEs going ahead, we look at historical norms and then adjust them upwards, reflecting the very low interest rate environment we expect to remain in place beyond the ten-year timeframe of this forecast.

For the banks, we assume that by 2025 they will have settled down to an ROE of around 14% which should enable them to grow EPS at about 3% per annum. How much an investor may be prepared to pay for that growth depends on whether or not you are a beneficiary of imputation credits. An international investor would probably want to receive a dividend in the region of 6% per annum to give them a total return of 5.5% above our expected long-term Australian bond rate of 3.5% per annum. At a 75% payout ratio that implies a PE of around 12.7 times earnings.

An Australian investor needs only an unfranked dividend of 4.1% to give a 9.0% per annum return after franking credits. This is equivalent to a PE of 18.2 times earnings. The

question becomes one of who sets the price - domestic or international investors?

This is not an easy question to answer. Both have an influence, as do the many Australian fund managers who all but ignore franking credits because they don't impact the league tables. farrelly's answer, as is often the case, lies somewhere in the middle. International investors and careless fund managers clearly have an influence on price, but so do domestic investors who would no doubt become heavy sellers if the imputation system was ever removed.

If the truth does lie in the middle, it implies a PE ratio of 15.5 times earnings. Now, this is well above the current level of 12 and well above the long-term average and most market participants would describe it as fanciful. However, in an environment where cash rates are likely to stay low for a long time, farrelly's believes that markets will get used to paying up for earnings.

Resources

We assume that, 10 years hence, resource companies will be seen as making up a highly cyclical, low growth sector and, as a result, trade on a modest 14 times sustainable earnings. The market is unlikely to pay more than that because working out just what are sustainable earnings in the resource sector is a major challenge. Uncertainty means greater risk and lower valuations.

The rest

The rest of the market, admittedly a grab bag of very different stocks, should trade closer to, but not quite at US multiples. The reason for the lag is that Australian interest rates, while low, are likely to remain marginally higher than US rates. Higher interest rates translate into lower PE multiples.

Figure 5: Bottom up forecast PE ratios for Australian Equities 2025

Sector	Weight %	PE ratio
The banks	30	15.5
Resources	15	14.0
The rest	55	18.5
Average		**16.7**

Source: farrelly's estimates

On average, that brings the market PE to 16.7 times earnings as shown in Figure 5. This is a little lower than our previous estimate of 17.5 times earnings. It is a result of a reassessment of likely future PE ratios for the banks where in the past we have thought of the price being largely set by domestic investors who give greater weight to imputation credits.

Putting it all together.

Adding together current dividend yield including imputation credits, expected earnings growth and the effect of PEs expanding from their current level of 15.2, gives an expected return of 11.1% per annum for the next 10 years, as shown in Figure 6.

Figure 6: Base case and pessimistic forecasts for Australian Equities 2015 - 2025

Component	Base case returns %pa	Pessimistic returns %pa
Dividends (including imputation credits)	6.3	6.3
EPS growth	3.8	-1.5
Change in PE	0.9[1]	-2.4[2]
Forecast Return	**11.1**	**2.4**
Less Inflation	-2.5	-2.5
Real returns	**9.6**	**-0.1[3]**
Real returns without imputation	8.1[4]	-1.6

Source: farrelly's estimates. Notes: 1. Assume PE_{2025} is 16.7x; 2. Assumes PE_{2025} is 12.0x; 3. Equivalent to 1 in 20 worst case scenario; 4. Imputation is worth 1.5% pa

Risk. What if things don't work out as well as we expect?

Figure 6 also includes a pessimistic forecast because things don't always turn out as well as expected. This is our 1-in-20 expected return, or, to put it another way, we are 95% confident that **real** returns will be higher than –0.1pa.

The pessimistic forecast for EPS growth of –1.5% per annum would most likely be a result of a larger than expected recession hurting the banks; resource stocks earnings halving due to commodity prices staying low; and the industrials failing to rebound, as we have expected. It's all quite plausible.

In terms of PE ratios the pessimistic scenario assumes that 2025 comes in a period of higher inflation or, perhaps, a recession causing PEs to fall to 12 times earnings. As can be seen from Figure 4, this has happened many times in the past.

These outcomes are quite possible. Despite the facts that, historically, markets have performed well over most decades and that Australian equities do appear attractively priced, there are no guarantees. For investors who cannot afford a long period of very low returns, secure assets still have a place in the portfolio.

farrelly's long-term risk assumptions

In formulating the farrelly's forecasts, a range of different economic scenarios are considered and, for each, a range of return estimates is produced for the different asset classes. The scenarios relate to economic outcomes and the Occam's Razor formula is used to translate those outcomes into return forecasts. Clearly, it is impossible to be exact about such things and so the farrelly's Forecasts are best thought about as the central point of a range of possible outcomes, not a precise prediction of an outcome.

Scenario	Prob	Description	Range of 10 yr. nominal returns (%pa), 75% probability	
Base case - muddle through	**44%**	The developed world grows slowly,due to weak demographics and as a response to governments' deleveraging and the accompanying fiscal tightening. Corporate profits grow much the same as usual, inflation and interest rates remain low. Emerging markets continue strong economic growth. Australia grows somewhat slower than usual. The resources boom ends. Sometime over the next decade most economies experience a sharp V shaped recession.	**Australian Equities** **Developed Mkt Eq.** **Cash** **Inflation**	**8 to 13** **6 to 10** **1 to 4** **2 to 3**
Recession	**14%**	Most of the developed world, including Australia, experiences little or no growth for the decade. The best example is Japan from 1990 to 2010. Inflation and interest rates are low, and profit growth is negative as companies struggle to maintain profit margins. PEs fall to low levels.	**Australian Equities** **Developed Mkt Eq.** **Cash** **Inflation**	**2 to 6** **-2 to 1** **1 to 1** **2 to 3**
Western recession - not Australia	**5%**	The world divides into two groups: those struggling under high government debt; and, those with low debt and deficits. For the developed world, the scenario is as per the Recession scenario above. For Australia and the emerging markets, it looks like the Base case/muddle through scenario.	**Australian Equities** **Developed Mkt Eq.** **Cash** **Inflation**	**8 to 14** **-2 to 1** **1 to 4** **2 to 3**
Wither Australia	**9%**	The rest of the world follows the Base case/ muddle through scenario while Australia experiences little or no growth, falling EPS, and low PE ratios.	**Australian Equities** **Developed Mkt Eq.** **Cash** **Inflation**	**2 to 6** **6 to 10** **1 to 1** **2 to 3**
Depression	**3%**	The road map is the Great Depression of the 1930s. Real economic growth is negative, interest rates very low, earnings collapse and PE ratios fall. This scenario strikes all economies including emerging markets.	**Australian Equities** **Developed Mkt Eq.** **Cash** **Inflation**	**-6 to 0** **-7 to -3** **-1 to 1** **-1 to 2**
Stagflation	**6%**	The benchmark is the 1970s – high inflation, very high interest rates, sluggish growth and low EPS growth. PE ratios are also low. This condition hits the majority of the developed world.	**Australian Equities** **Developed Mkt Eq.** **Cash** **Inflation**	**7 to 10** **3 to 6** **7 to 13** **5 to 8**
Hyperinflation	**<1.0%**	Much of the world experiences hyperinflation such as was seen in Weimar Germany in the 1930s. Property maintains value but equities and paper-based assets are essentially wiped out in real terms.	**Australian Equities** **Developed Mkt Eq.** **Cash** **Inflation**	**36 to 68** **31 to 62** **27 to 101** **27 to 102**
Back to normal	**12%**	We return to the great moderation – normal interest rates and inflation, normal growth rates and PE ratios	**Australian Equities** **Developed Mkt Eq.** **Cash** **Inflation**	**11 to 16** **8 to 12** **4 to 5** **3 to 3**
Boom	**7%**	Governments reject calls for austerity and engage in expansionary spending. Confidence returns and economic growth picks up world wide. Budgets come back into balance as taxes increase with earnings. A brief burst of higher inflation is calmed by moderate monetary and fiscal tightening. Emerging market growth accelerates, profits grow rapidly, commodity prices recover.	**Australian Equities** **Developed Mkt Eq.** **Cash** **Inflation**	**17 to 22** **14 to 18** **4 to 6** **3 to 4**

The residential housing bubble to cause a recession?

It happened in the US. Spain and Ireland too – a bursting of the residential property bubble followed by a major recession. Wise men from far away arrive in Australia and New Zealand and smile knowingly at the locals naiveté. "We didn't think it would happen to us either", they say, "it's just a matter of time before your bubble bursts and then, lookout..."

There are two pieces to this story. The first is that housing prices are set to crash, and the second is that such a crash will cause a recession. Neither are foregone conclusions. It is useful to trace the linkages here in order to understand the cause and effect.

In the US, Ireland and Spain, the housing bust was preceded by rapidly rising prices and frenzied overbuilding. According to farrelly's estimates, there was two to three years worth of excess supply of residential property built up in the US from 2001 to 2006. In Ireland and Spain, it was more like five and seven years of excess supply, respectively. This does not just happen. It normally requires very aggressive and often irresponsible lending to home buyers and developers. When prices start to fall, supply outstrips demand, sellers head to the exits, new construction comes to a screaming halt, and the banks start counting their losses. New house construction, normally around 3% of GDP, but around 5% in such a boom, falls to close to zero and stays there until the glut clears. Banks go into survival mode, lending only to the very best credits and calling in loans where they can. It's easy to see the linkages between the property price bust and the recession that follows.

Australia has had the price rises but not the overconstruction. Prices have risen strongly on the back of more generous, but still responsible, lending practices. That's not an oxymoron. Lower interest rates mean the same borrower can service a higher loan and the banks are very happy to oblige. Now, when every buyer has more to spend and is chasing an item that is in undersupply, guess what happens? Prices rise, and by a lot. However, if the banks aren't simultaneously increasing loans to developers, we don't get the oversupply, we don't get the bad debts to the banks, we don't get a crash and we don't get a recession.

farrelly's thinks housing prices are too high on both sides of the Tasman, but without massive oversupply or sharply rising interest rates, price corrections come slowly. As an example, between 1987 and 1989, Sydney prices rose by over 100%. When a recession came, brought on by interest rates rising to 20%, prices fell around 15% then went sideways for five years. Nasty, but it took 20% interest rates to do it.

Over the next few years, we cannot see interest rates going back to 20%, or even 4% for that matter. It is oversupply that we have to worry about. There are some small signs of trouble; construction of units has risen strongly in Australia over the past few years resolving some of the chronic undersupply of housing. Current levels aren't sustainable but the increases are much less than we saw in the US, and activity is already slowing, reducing the risk of oversupply. This puts a brake on growth, but is not enough, of itself, to trigger a recession.

The residential property market is stretched. But about to crash, triggering a recession?

It's nuts and you can clearly see it's nuts.

Part 2

Implementation

More than one way to skin a cat

Asset allocation is not an exact science. Forecast returns are approximate, risk is multi-dimensional and difficult to forecast and, most importantly, the efficient frontier is more like an efficient band or an efficient cloud rather than a line. All of which says that there are many good portfolios that can be built to achieve a particular objective – in other words, there is more than one way to skin a cat.

Dynamic asset allocation

The asset allocation approaches described in these pages come under the broad heading of Dynamic Asset Allocation (DAA). DAA is very different from both Strategic Asset Allocation (SAA) and Tactical Asset Allocation (TAA). With SAA, asset allocation changes are made infrequently and are generally small. Under SAA, investors must be prepared to hold and, worse still, buy assets that are manifestly overpriced. On the other hand, TAA is generally about making decisions about short-term price moves over a period that may vary from one to 18 months, which means it is crucially dependent on correctly timing both the entry and exit.

DAA is all about moving ahead of events, sometimes up to two to three years in advance of an event occurring – and as such, DAA is not dependent on correctly timing either the entry or the exit to a position. DAA is essentially a long-term strategy but unlike SAA, it is not blind to valuation excesses. DAA is all about investing in reasonably priced assets and most importantly, avoiding investment in overpriced assets.

Different approaches suit different advice models.

farrelly's offers three different approaches to suit three different types of advisers:

- those who want to create bespoke portfolios to suit their preferences and beliefs and those of their investors;
- those who believe asset allocation should be left to the experts and who want to follow a model allocation that is managed proactively; and,
- those who prefer to make an asset allocation change only when it is essential. Effectively, all this group wants is a quick practical check of their existing asset allocations to see if a change is needed.

The farrelly's Dynamic Asset Allocation Handbook caters to all three approaches, with three distinct sets of guidelines as outlined on the following pages.

A directed approach – The Model Allocations

This approach will suit those advisers who believe that allocating between asset classes is something best left to a suitably qualified third party. The Models should be followed exactly once a suitable level of risk has been selected for the investor. The process farrelly's uses to create these Model Allocations is:

1. Create Benchmark Allocations – to give high returns at a given, stable level of volatility.

2. Reduce weights below Benchmark Allocations if assets are fully valued to create Target Allocations – Even if most risky assets are fully valued or over valued, the Benchmark allocations will have a full al-location to those risky assets because the Benchmark allocations carry a stable level of risk. In the event that most assets are fully valued or overvalued as they were in 2007, the overall weights to risky assets will be reduced in the Target Allocations.

3. Assign zero weights to overvalued assets – In the event an asset becomes overvalued, that is it's expected return is less than that of Term Deposits (TDs), we will assign a zero weight to that asset class in the Target Allocation.

These three steps result in the **Target Allocations**, one more is needed to arrive at the **Model Allocations**.

4. Move slowly towards the Target Allocations – The first three steps of this process are all value based and as such, suffer from the curse of all value based approaches; they tend to buy and sell too early. To overcome the value curse, we stagger changes over time – generally over 18 months to two years. For example, if the Target Allocation of a particular asset falls from 16% to 0%, the Model Allocations would generally reduce by about 2% a quarter until the Model Allocation was 0%. Implicit in this is the idea that when assets become overvalued, they often go on to become extremely overvalued, and, similarly, if they become cheap, they often go on to become very, very cheap. As a result, it is normally a good idea to average in and out of positions over time.

Notes on using the directed approach

1. The Model Allocations may be unsuitable as a long-term buy and hold portfolio – This is generally where an overpriced asset is in the process of being sold down over time, and the Model Allocation to that overpriced asset would be too high without a plan for selling down that asset.

2. Investor portfolios should be rebalanced regularly – If the Model Allocation contains overpriced assets that are gradually being sold down, it is essential that the selling process does take place over time. As a result, it is important that those investors following the Model Allocations review them at least half yearly.

3. New money should follow the Target Allocation rather than the Model Allocation

New cash should be invested in line with the Target Allocation rather than the Model Allocation because the latter will, from time to time, hold assets that are in the process of being sold down. It would be counterproductive to buy an overpriced asset one quarter and sell it down the next. Hence, new money should be invested more in line with the Target Allocations rather than the Model Allocations.

Figure 1 : farrelly's Model and Target Allocations - Australian Domiciled Investors - September 2015

Model allocations	1		2		3		4		5	
	Model	Target	Model	Target	Model	Target	Model	Target	Model	Target
Risky Assets										
Australian Equities (%)	8	8	14	15	24	24	34	34	45	47
Developed Market Equities (%)	4	3	5	5	8	7	12	11	16	15
Emerging Market Equities (%)	4	4	6	7	10	13	13	15	18	20
Australian REITs (%)	3	3	5	5	8	9	9	10	10	10
At Risk Debt (%)	3	4	3	2	3	0	2	0	1	0
Fund of Hedge Funds (%)	0	0	0	0	0	0	0	0	0	0
Total Risky Assets (%)	22	22	33	34	53	53	70	70	90	92
Defensive assets										
Secure Debt (%)	59	60	57	62	44	45	27	28	7	6
Cash (%)	19	18	10	4	3	2	3	2	3	2
Total Defensive Assets(%)	78	78	67	66	47	47	30	30	10	8
Base case long term returns										
10 year total return (%pa pre tax)	4.6		5.7		7.1		8.2		9.7	
10 year total return (%pa,15% tax)	4.0		4.9		6.1		7.1		8.5	
10 year total return (%pa, 46.5% tax)	2.7		3.4		4.3		5.1		6.2	
Yields (%pa pre tax)	3.6		3.8		4.1		4.3		4.7	
Worst case long term scenarios: 10 year REAL returns (%pa) are less than:										
1 in 50 chance	-0.3		-0.5		-1.0		-1.6		-2.4	
1 in 20 chance	0.4		0.2		-0.2		-0.6		-1.0	
1 in 6 chance	1.1		1.3		1.6		1.7		2.0	
Worst case short term scenarios: 1 year NOMINAL total returns (%pa) are worse than										
1 in 50 chance	-13		-18		-27		-37		-50	
1 in 20 chance	-6		-9		-15		-21		-29	
1 in 6 chance	-1		-2		-4		-7		-10	
Frequency of years with negative returns										
One year in	7.1		5.7		4.4		3.8		3.4	

Note: Model Allocations are for use with existing portfolios. Target Allocations are best used for new monies.

An Advised approach - swim between the flags

For advisers who prefer to leave portfolios alone for the most part but want a quick second opinion on how the portfolios are positioned at any point in time, the Advised approach is suggested.

Under this approach we set upper and lower ranges for the various asset classes as shown in Figure 2 on the following page. These ranges are above and below the Model Allocations which are constructed as described on the previous two pages.

The Advised approach consists of two steps:

1. Compare the investor's current allocation with the ranges shown in Figure 2. If outside the range bring that allocation back within the range.
2. Add up the exposure to risky and defensive assets and if inside the ranges then all is well. If the risky allocation is higher than allowed, reduce the allocation to the least attractive risky assets and apply that allocation to the defensive assets. Similarly if the allocation to risky assets is too low, then reduce the exposure to defensive assets and apply the balance to the most attractive risky assets.

As an administrative process, this is very similar to strategic asset allocation – check the investor's current allocation against a maximum and minimum range for each asset class and, if outside those ranges, rebalance the portfolio back inside the ranges. However, while administratively similar, the two approaches have very different outcomes.

The two main differences are, clearly, that the Model Allocation ranges vary over time as you would expect, but also that the size of the band on either side of the Model Allocations also varies. Instead of just being plus or minus 5%, farrelly's believes it is reasonable to be much more defensive when assets are fully or over priced – it's just not sensible to be very aggressive at such times. Similarly, when assets are cheap, the minimum weight will be close to the Model Allocation weight but there will be much more flexibility to go overweight.

Notes on using the Advised approach

1. Investor portfolios should ideally be rebalanced either quarterly or half yearly – The upper limits allow investors to hold overpriced assets because these upper limits will be reduced over time causing these assets to be sold down over time. Accordingly, it is essential that the review and selling process does take place at least half yearly.

2. The limits on overall exposure to risky assets should be closely followed – Because the ranges on the exposures to individual risky assets is quite broad, it would be very easy to have far too much risk in a portfolio if it were not for the limits on exposures to risky assets as a whole. This provides much of the discipline in the system and therefore should be closely followed.

Figure 2 : farrelly's Model Allocation Ranges - Australian Domiciled Investors - September 2015

Model ranges	1			2			3			4			5		
	Min		Max	Min		Max	Min		Max	Min		Max	Min		Max
Risky Assets															
Australian Equities (%)	0	-	28	9	-	42	16	-	58	23	-	74	32	-	88
Developed Market Equities (%)	0	-	5	0	-	7	0	-	10	0	-	14	0	-	18
Emerging Market Equities (%)	0	-	8	0	-	13	0	-	21	0	-	23	5	-	28
Australian REITs (%)	0	-	5	0	-	7	0	-	11	0	-	12	0	-	12
At Risk Debt (%)	0	-	5	0	-	5	0	-	5	0	-	5	0	-	5
Fund of Hedge Funds (%)	0	-	5	0	-	5	0	-	5	0	-	5	0	-	5
Total Risky assets (%)	19	-	31	31	-	47	47	-	65	65	-	83	83	-	98
Defensive assets															
Secure Debt (%)	53	-	70	42	-	64	28	-	48	14	-	31	0	-	11
Cash (%)	2	-	22	2	-	13	2	-	8	2	-	7	2	-	6
Total Defensive Assets(%)	69	-	81	53	-	69	35	-	53	17	-	35	2	-	17
Base case long term returns															
10 year total return (%pa pre tax)	4.6			5.7			7.1			8.2			9.7		
10 year total return (%pa,15% tax)	4.0			4.9			6.1			7.1			8.5		
10 year total return (%pa, 46.5% tax)	2.7			3.4			4.3			5.1			6.2		
Yields (%pa pre tax)	3.6			3.8			4.1			4.3			4.7		
Worst case long term scenarios: 10 year REAL returns (%pa) are less than:															
1 in 50 chance	-0.3			-0.5			-1.0			-1.6			-2.4		
1 in 20 chance	0.4			0.2			-0.2			-0.6			-1.0		
1 in 6 chance	1.1			1.3			1.6			1.7			2.0		
Worst case short term scenarios: 1 year NOMINAL total returns (%pa) are worse than															
1 in 50 chance	-13			-18			-27			-37			-50		
1 in 20 chance	-6			-9			-15			-21			-29		
1 in 6 chance	-1			-2			-4			-7			-10		
Frequency of years with negative returns															
One year in	7.1			5.7			4.4			3.8			3.4		

A bespoke approach - plot your own course.

This approach best suits those advisers who want to take control of the asset allocation process but want to do so within a disciplined and logical framework. Long-time farrelly's subscribers and those looking though past issues of the Handbook will note that this approach was the only one offered prior to the September 2009 issue. The principal tools to use to create bespoke asset allocations are the farrelly's Benchmark Allocations (see Figure 3) and the farrelly's Investment Strategy Implementor.

The role of the farrelly's Benchmark Allocations

The farrelly's Benchmark Allocations are designed to indicate what sort of return you should achieve for taking on a particular level of risk – that is, they are intended to be used as benchmarks against which to assess the efficiency of investor portfolios.

If a investor portfolio is delivering close to the expected returns of the equivalent Benchmark Allocation, then the investor portfolio is efficient and doesn't need to be changed. But, if the returns of the investor portfolio are well below those of the equivalent Benchmark Allocation, then the asset allocation of the investor's portfolio should be changed – using the farrelly's Implementor software – until returns are close to that of the equivalent Benchmark Allocation. Quite often, the investor's new asset allocation will be very different from the Benchmark Allocation, but nonetheless it will be an efficient portfolio.

The Benchmark Allocations are NOT designed to be followed slavishly

Because the Benchmarks Allocations are based on current valuations, they respond quickly to changes in relative valuations in markets. As a result, they vary by more each quarter than is sensible to track because, if followed slavishly, they would generate unnecessary turnover and resulting costs and taxes.

In addition, while the Benchmark Allocations change quickly based on current valuations, markets often respond quite slowly to valuation imbalances. Once overvalued, a market can remain so for years and go from being mildly overvalued to massively overvalued over time. Similarly, when in free fall, a market can move from fair value, to cheap, to very, very cheap – as was the case in the second half of 2008 and early in 2009. As a result, the Benchmark Allocations share the curse of all value-based approaches – they tend to buy too early and sell too early. Hence, better results will normally be achieved by following the Benchmark Allocations at a lag.

Finally, in order to fulfil their benchmarking role, the Benchmark Allocations maintain a constant exposure to risk even when risk is unattractively priced. Each portfolios volatility is aligned to the volatility level of standard industry portfolios. So, Benchmark Allocation 2 will always have the same level of volatility as a typical Capital Stable Fund and Benchmark Allocation 4 will always have the same level of volatility as a typical Balanced Fund. This means that even if markets are all highly overvalued, Benchmark Allocation 4 will have significant exposures to risky assets (equities, property and at risk debt) in order to match the level of volatility inherent in a typical balanced fund. This is because the Benchmark Allocations are intended to describe the return to expect for

taking on a certain level of volatility. They do not suggest whether it is prudent to take on that level of risk. That is the role of the adviser in creating the bespoke allocations. In most respects, the bespoke process should mirror that described in the Model Allocations - but with much more control in the hands of the adviser.

When building bespoke asset allocations, the following principles should be followed.

Keep transaction costs low

Transaction costs and taxes eat returns. The keys to keeping them low are pretty clear. Firstly, make as small a change as possible when bringing portfolio expected returns in line with those of the Benchmark Allocations. To do this, you need to use the farrelly's Investment Strategy Implementor software (available to all subscribers on the private farrelly's forum). You will find that it is generally possible to find allocations that have entirely acceptable expected returns but require much less change than implied by moving all the way to the Benchmark Allocations.

Rebalance infrequently or stagger changes

In order to avoid the value curse, either make infrequent reviews of investor asset allocations or, when making changes, stagger them over time. We suggest reviewing bespoke portfolios every one to two years. This way, when assets move into over valued territory, you will not sell out at the very first moment and miss out on any move to the very, very over valued status assets can achieve in a bubble. Or, you could choose to make more frequent changes, but implement them gradually over time. For example, a decision to increase allocations to international equities vis a vis Australian equities could be made today, but implemented in six quarterly, or three half-yearly moves over the next 18 months. How you choose to do it will depend on the nature of your practice and systems, and the attitudes of your investors.

Vary the risk level as market valuations vary

Because the volatility inherent in the Benchmark Allocations are anchored on typical industry balanced and capital stable funds, they don't reduce risk when markets become over valued. Subscribers using a Bespoke Approach need to make that decision. Generally speaking, that will mean taking a risk 4 (or balanced) type of investor down to a risk 3 or 2 level gradually over time if a bull market continues unchecked.

Don't buy expensive assets

Holding over priced assets is a real problem if they were bought at over priced levels. It's less of an issue if they were bought at fair value. So, one of the keys to building bespoke portfolios is to simply not buy expensive assets. Assets are rated Expensive when their expected return falls below the rate of return available on TDs or government bonds. The Benchmark Allocations don't help here. Because they always take on market risk, they may still have significant exposures to expensive assets, particularly in environments where all risky assets are rated Expensive, as was the case in late 2007.

Dollar cost averaging can help when placing new money

Dollar Cost Averaging (DCA) is simply staggering a purchase of assets over time, typically when investing new money. Despite a lot of hype surrounding DCA, farrelly's research suggests that DCA costs dollars on average. This is because it increases the amount of

time spent invested in cash, which tends to be the lowest returning asset in the long-term. Having said that, here are some guidelines about when it does and sense to use DCA:

1. When markets are Fully Priced according to the farrelly's Tipping Point Tables (that is, when they are expected to return less than 2.5% per annum above TDs or government bonds), DCA doesn't cost much and may help ease investors' anxieties. Quite a good idea, in other words. However, make sure that the DCA program is relatively short-term – no more than six months is our suggestion.
2. When markets are over priced (expected returns are less than TDs or government bonds) DCA is not a bad idea – but not buying at all is a much, much better one. Again, just don't buy over priced assets
3. When markets are at Fair Value (returning 2.5% to 5% per annum above TDs or government bonds), DCA is very costly and unnecessary. It's much better to invest immediately.
4. When markets are cheap and in particular, cheap and falling, then DCA comes into its own. In this circumstance, it will probably make money as well as relieving anxiety (critical at these times). Again, keep the program fairly short, ideally a six month period, but no longer than 12 months.
5. When moving between two risky assets more time can be taken, say 18 months to two years. The comments above relate to moving from cash to risky assets.

Figure 3 : farrelly's Benchmark Portfolios - Australian Domiciled Investors - September 2015

	Traditional asset class portfolios					Portfolios including alternative assets				
	1	2	3	4	5	6	7	8	9	10
Risky assets										
Australian Equities	8	15	24	34	47	8	15	24	34	47
Developed Market Equities	3	5	7	11	15	3	5	7	11	15
Emerging Market Equities	4	7	13	15	20	4	7	13	15	20
REITs	3	5	9	10	10	3	5	9	10	10
At Risk Debt	4	2	0	0	0	4	2	0	0	0
Fund of Hedge Funds	0	0	0	0	0	3	4	4	4	2
Risky assets	22	34	53	70	92	25	38	57	74	94
Defensive assets										
Secure Debt	60	62	45	28	6	60	58	41	24	4
Cash	18	4	2	2	2	15	4	2	2	2
Defensive assets	78	66	47	30	8	75	62	43	26	6
Expected Returns, Yields and Risks for Benchmark Portfolios										
10 year total return - pre tax	4.6	5.6	7.0	8.1	9.7	4.6	5.7	7.1	8.2	9.7
10 year total return - 15% tax	3.9	4.8	6.1	7.1	8.5	4.0	4.9	6.1	7.1	8.5
10 year total return - 46.5 tax	2.6	3.3	4.3	5.1	6.2	2.7	3.4	4.3	5.1	6.2
Yields	3.7	3.9	4.2	4.5	4.8	3.6	3.8	4.1	4.3	4.7
Worst case long term scenarios: the chance that 10 year REAL returns are worse than:										
1 in 50 chance	-0.2	-0.7	-0.9	-1.6	-2.3	-0.3	-0.5	-1.0	-1.6	-2.4
1 in 20 chance	0.5	0.3	0.0	-0.5	-0.9	0.4	0.2	-0.2	-0.6	-1.0
1 in 6 chance	1.1	1.4	1.7	1.8	2.1	1.1	1.3	1.6	1.7	2.0
Worst case scenarios for one year NOMINAL down turns										
1 in 50 chance	-13	-18	-27	-37	-50	-13	-18	-27	-37	-50
1 in 20 chance	-7	-10	-15	-20	-29	-6	-9	-15	-21	-29
1 in 6 chance	-1	-2	-4	-7	-10	-1	-2	-4	-7	-10
Frequency of years with negative returns										
One year in	6.9	5.5	4.4	3.8	3.4	7.1	5.7	4.4	3.8	3.4

Notes

1. Returns and yields for Australian Equities, Developed Market Equities, Emerging Market Equities, A-REITs, Debt and Cash reflect index returns. No allowance has been made for the after-fee impact of active management on returns or yields.
2. Long-term worst case scenarios are real (i.e. after Inflation) returns. If subscribers wish to get a sense of nominal worst case scenarios they should add expected inflation, 2.0%, to these figures.
3. Short-term worst case scenarios are shown in nominal terms, given investors generally think in nominal returns during falling markets.

NZ domiciled investor supplement

The forecasts shown below are based upon the Occam's Razor approach outlined in the Forecast section. This approach to forecasting has many attractions including accuracy, simplicity and transparency. By making available the underlying logic and assumptions (Figure 1 below), subscribers are able to quickly understand the rationale for the forecast and determine the effect of changing the assumptions.

Figure 1: Expected Returns, Yields and Risks for Asset Classes - NZ Domiciled Investors, September 2015

	Australian Equities	Developed Market Equities	Emerging Market Equities	A-REITs	Secure Debt	At Risk Debt	Fund of Hedge Funds	Cash
Yield (pre tax)	**4.8%**	**2.4%**	**3.4%**	**4.9%**	**4.2%**	**7.1%**	**-**	**3.7%**
+Currency Impact	**0.6%**	**1.7%**	**0.6%**	**0.6%**	**-**	**-**	**-**	**-**
+ Earnings growth (f)	**3.8%**	**3.4%**	**4.7%**	**3.1%**	**0.0%**	**-1.5%**	**-**	**-**
+ Valuation effect	**0.9%**	**1.0%**	**2.9%**	**-0.3%**	**0.0%**	**-0.2%**	**-**	**-**
Index return	**10.2%**	**8.5%**	**11.7%**	**8.3%**	**4.2%**	**5.4%**	**3.7%**	**3.7%**
+ Manager value add	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**2.3%**	**0.0%**
Total Return (pre tax)	**10.2%**	**8.5%**	**11.7%**	**8.3%**	**4.2%**	**5.4%**	**6.0%**	**3.7%**
Total Return (30% tax)	**8.7%**	**7.0%**	**10.2%**	**6.8%**	**2.9%**	**3.8%**	**4.5%**	**2.6%**
PE Now	15.2	18.2	11.7					
PE 2025 (f)	16.7	20.1	15.6					
Yield 2025 (f)				5.1%				
Indicative Index	All Ords	S&P500	FTSE -EM	ASX REITs				
Index Level	5,172.6	1,979.9	518.7	1,230.2				
Worst case scenarios :10 year REAL total return is less than...								
1 in 50 chance 50	-2.5%	-5.3%	-4.8%	-5.0%	-2.5%	-3.5%	-5.2%	-1.0%
1 in 20 chance 20	-0.1%	-4.0%	-1.5%	-3.0%	-0.9%	-2.1%	-4.0%	-0.9%
1 in 6 chance 6	2.4%	-1.4%	1.6%	-0.4%	0.8%	0.3%	-2.3%	-0.7%
Worst case short term scenarios: 1-year NOMINAL return is less than								
1 in 50 chance 50	-65%	-65%	-74%	-61%	-19%	-45%	-22%	0%
1 in 20 chance 20	-38%	-38%	-43%	-35%	-11%	-26%	-12%	0%
1 in 6 chance 6	-15%	-15%	-17%	-13%	-3%	-10%	-3%	2%
Frequency of years with negative returns								
1 year in	3.0	3.0	2.9	3.1	4.1	3.0	4.9	Never

Figure 2 : farrelly's Model and Target Allocations - NZ Domiciled Investors - September 2015

Model allocations	1		2		3		4		5	
	Model	Target	Model	Target	Model	Target	Model	Target	Model	Target
Risky Assets										
Australian Equities (%)	7	10	11	14	17	19	24	28	31	37
Developed Market Equities (%)	5	4	9	9	13	13	16	15	22	20
Emerging Market Equities (%)	5	5	10	9	14	12	18	16	22	20
Australian REITs (%)	4	4	7	8	9	12	11	14	11	14
At Risk Debt (%)	1	2	1	0	1	0	0	0	0	0
Fund of Hedge Funds	1	3	2	1	2	1	2	1	1	0
Total Risky Assets (%)	23	28	39	42	54	57	71	74	87	91
Defensive Assets										
Secure Debt	60	58	52	56	40	39	23	22	8	7
Cash	17	14	9	2	6	4	6	4	5	2
Total Defensive Assets(%)	77	72	61	58	46	43	29	26	13	9
Base case long term returns										
10 year total return (%pa pre tax)	5.6		6.5		7.3		8.3		9.3	
10 year total return (%pa, 30% tax)	4.2		5.1		5.9		6.9		7.9	
Yields (%pa pre tax)	4.3		4.1		4.1		4.1		4.0	
Worst case long term scenarios: 10 year REAL returns (%pa) are less than:										
1 in 50 chance	-0.2		-0.8		-1.2		-1.8		-2.4	
1 in 20 chance	0.3		0.1		-0.5		-0.9		-1.2	
1 in 6 chance	1.1		1.4		1.5		1.6		1.9	
Worst case short term scenarios: 1 year NOMINAL total returns (%pa) are worse than										
1 in 50 chance	-15		-21		-28		-38		-49	
1 in 20 chance	-7		-11		-15		-21		-28	
Frequency of years with negative returns										
One year in	**6.6**		**5.1**		**4.3**		**3.8**		**3.4**	

Notes

1. Returns and yields for Australian Equities, Developed Market Equities, Emerging Market Equities, A-REITs, Debt and Cash reflect index returns. No allowance has been made for the after-fee impact of active management on returns or yields.
2. Long-term worst case scenarios are real (i.e. after Inflation) returns. If subscribers wish to get a sense of nominal worst case scenarios they should add expected inflation, 2.0%, to these figures.
3. Short-term worst case scenarios are shown in nominal terms, given investors generally think in nominal returns during falling markets.

Tipping point tables

NZ Domiciled investors - September 2015

These tipping point tables summarise the outcome of the farrelly's forecasting process and, in particular, how the forecasts would change as markets change.

Australian Equities		Developed Market Equities		Emerging Market Equities		A-REITs	
All Ords 5172.6	F'cast return	S&P500 1979.9	F'cast return	FTSE EM 518.7	F'cast return	ASX REIT 1230.2	F'cast return
9500	2.1%	2900	4.0%	1000	3.7%	1700	3.7%
9000	2.7%	2800	4.4%	950	4.3%	1650	4.1%
8500	3.4%	2700	4.8%	900	4.9%	1600	4.6%
8000	4.2%	2600	5.3%	850	5.5%	1550	5.0%
7500	5.0%	2500	5.7%	800	6.2%	1500	5.4%
7000	5.9%	2400	6.2%	775	6.6%	1450	5.9%
6750	6.4%	2300	6.7%	750	7.0%	1400	6.4%
6500	6.9%	2250	7.0%	725	7.4%	1375	6.7%
6250	7.5%	2200	7.2%	700	7.8%	1350	6.9%
6000	8.0%	2150	7.5%	675	8.3%	1325	7.2%
5750	8.6%	2100	7.8%	650	8.8%	1300	7.5%
5500	9.3%	2050	8.1%	625	9.3%	1275	7.8%
5250	9.9%	2000	8.4%	600	9.8%	1250	8.1%
5000	10.7%	1950	8.7%	575	10.3%	1225	8.4%
4750	11.4%	1900	9.0%	550	10.9%	1200	8.7%
4500	12.3%	1850	9.4%	525	11.5%	1175	9.0%
4250	13.2%	1800	9.7%	500	12.2%	1150	9.3%

Cheap	Fair Value	Fully Priced	Overpriced
Forecast 5%pa or more above TDs	Forecast 2.5% to 5.0%pa above TDs	Forecast 0% to 2.5%pa above TDs	Forecast return lower than TDs