portfolio construction CONFERENCE
25/26/27 August 2009 | Australian Technology Park, Eveleigh, Sydney

**Due Diligence Forum Research Paper**

# EQUITY INVESTING FOR REGULAR, HIGH INCOME WITH LOW VOLATILITY

Patrick Noble, Investment Specialist, Zurich Financial Services

Denning Pryce / Zurich Financial Services

---

*After years of high investment returns and now as we go through one of the nastiest bear markets on record, risk management has resurfaced as a primary concern. The current market landscape has changed - low interest rates, modest government bonds yields and an unclear outlook for equity and property markets. What hasn't changed is a need for reliable income streams. This research paper examines investors' options in the wake of the failure of so-called conservative and high yielding products? It examines these issues with the focus being on how equity income funds can offer an investor's portfolio consistent and stable income at volatility levels substantially lower than the market.*

In recognition of the Western world's rapidly ageing population there has been a spawn of income generating investments to match the lifestyle goals of retirees. But as the '2008/2009 global financial crisis' has shown, either risk was forgotten or not appropriately accounted for in the design of many such products. No doubt the issue was compounded by the fact that in the 'hunt for yield', traditional sources of income from staples such as bonds, property and to a lesser extent, shares, has dwindled in recent years[1]. As a consequence, investors found themselves looking for alternative solutions. These typically involved complicated structures, exotic instruments and, in some instances, high and inappropriate levels of gearing. Investment risk was overlooked with the promise of capital guarantees but the benefit of hindsight suggests it would have been wise to read the fine print.

A degree of scepticism and mistrust now dominates the psyche of income seeking investors yet the need for income generating investments remains. Transparency, liquidity and an appropriate trade off between risk and return along with a reliable income stream remain pre-requisites for an appropriately diversified income portfolio.

This research paper seeks to examine what are, in today's changed landscape, some of the options available for investors seeking income with a focus on equity income funds. The paper also reviews how investors can use certain equity income funds in their portfolios to not only provide income but also to reduce overall volatility.
In the next decade, four million[2] Australians will reach retirement age and by 2051, the Australian Bureau of Statistics estimates that close to 25%[3] of the population will be over age 65. This bulging demographic shift is creating a huge demand for conservative, income producing investments.

---

[1] For example interest rates are currently at generational lows; Greenspan's conundrum in 2005 noting the persistence of low long term US Treasury yields; recent reductions in dividends per share paid, for example Australian bank dividends have been cut by 25%.
[2] Source: Disability and Ageing Population Patterns and Implications Report by Australian Government, Institute of Health and Welfare, December 2000

© PortfolioConstruction Conference 2009.

It wasn't so long ago that a vibrant sharemarket promised a prosperous retirement for cashed up baby boomers but now that outlook is far from certain. Prolonged periods of economic expansion and low inflation have been replaced with the prospect of shorter and sharper economic cycles while the impact of deleveraging and wave of government spending around the globe has yet to fully play out. Neither does the prospect of inflation or deflation seem appetising, yet all these factors can be expected to increase volatility in asset class returns.

As retirees reassess their options, they also have to fight a war on another front - longevity. With increasing life expectancies, how will they balance the need for high income with an appropriate level of growth without unnecessarily sacrificing their risk profile?

**What has happened to investors in the 'income' space?**

From the collapse of sub-prime mortgages and high profile hedge funds in 2007/08, to the knock-on effects from highly geared companies, the global credit crunch has shown one thing; that investors have been taking high and unknown risks. In the search for a reliable income stream, the prospect of ongoing volatility and low cash rates is not providing income seeking investors with an array of attractive options.

Figure 1 below examines key income generating asset classes individually and how the landscape has changed for each in terms of their ability to generate income. It is apparent that the many options previously available have somewhat diminished. Other income producing options such as equity income funds will be discussed later.

Figure 1: Asset class and income investor experience summary

| Asset Class | Considerations for Australian investors seeking income |
|---|---|
| Cash | Investors flocked to cash in 2008/9 as a safe haven however the pre-credit crisis Australian cash rate of 7.25% in March 2008 was slashed to just 3% by April 2009. While the ructions of the past 18 months have tested investor faith in equities, history has shown that cash rarely outperforms over the longer-term[4]. And while the RBA has signalled a change in its monetary policy stance, cash alone may not be sufficient to sustain a suitable yield over the long-term. |
| Mortgages | The victim of unintended consequences, mortgage funds were excluded from the Australian government's guarantee of approved cash deposits in October 2008. Many funds have been forced into freezing investor redemptions to avert an investor rush to the exit doors. Longer-term cash like returns appear to have been insufficient to compensate the higher level of risk. |

[3] Source: ABS Year Book 2003
[4] For example, the 15 year annualised return for Australian shares (S&P/ASX 200) 9.0% versus cash (UBS Bank Bill Index) 5.9%. Source: Mercer.

© PortfolioConstruction Conference 2009.

| | |
|---|---|
| Fixed Interest & Credit | The credit crisis increased investor awareness of the risks of income generating products. In the past, allocation to fixed interest in a portfolio was designed to generate an income stream with minimal risk, reducing the probability of negative returns. In retrospect, this is not what has happened and many investors did not receive an income stream as expected. Transparency and a back-to-basics approach will need to prevail going forward for it to be considered a low volatility approach to generating income. Rising yields will be positive for income in the future, but problematic for capital returns in the short-term. |
| Listed Property – REITs | Highly geared A-REITs were trounced by the credit crunch[5] and volatility is anticipated for some time yet as trusts go through the lengthy process of repairing their balance sheets. It is not out of the question that tomorrow's REITs may look like those of yesteryear - conservatively geared with reliable income streams - but until the indigestion runs its course, AREITS remain an unreliable proposition likely to have further distribution rationing to preserve capital. |
| Structured Products | High income and capital protection enticements glossed over the complex nature of many structured products. Investors have learned from the perils of CDOs, and their trust has been sorely tested in equity basket products - some of which have been hammered by knock-out events which in some instances have reduced income to zero[6]. Unfortunately, promised capital protection applies only at maturity. Investors can hold on for a 0% return several years into the future or exit their positions at a loss, as these instruments are typically trading at sharp discounts to their issue price. |
| Australian Shares | Australian shares can provide attractive long-term growth, with some tax-advantaged income from franking credits, although Australian companies are following a global trend of slashing dividends[7] in an effort to preserve capital and shore up balance sheets. While the Australian market continues to offer a superior yield to both cash and government bonds[8], this is little consolation for investors who have not only suffered through severe price declines, but who also rely heavily on dividends for cash flow. The key issue is to consider just how far dividends may be cut and what strategies are available to supplement this income, without further exposing their portfolio to undue levels of risk. |

Source: Zurich Investment Management, July 2009

[5] For the 12 months to June 2009 the S&P/ASX 300 A-REIT index was down -42.1%. Source: Mercer.
[6] For example, Macquarie ALPS 5. After suffering 7 knock out events, the yield was reduced to zero in late 2007. Investors now have to wait until 2013 for the return of their money.
[7] Goldman Sachs noted in the March 2009 reporting season that the raw average of dividend cuts across the Australian market was 22%. Pidcock, C. Reporting Season Wrap (III) – Dividends, Further Cuts to Come. March 2009.
[8] Goldman Sachs further noted in March 2009 that the prospective 'risked' yield spread relative to cash in FY09 was +410 basis points. Pidcock, C. Equity Strategy – Looking For Sustainable Yield. March 2009.

© PortfolioConstruction Conference 2009.

**Income generation - a different approach**

The global financial crisis has conspired against many income seeking investors. As Figure 1 summarises, opaque and highly complex structured products have disappointed and some more traditional asset classes find themselves frozen. The attraction of cash has diminished following a rapid series of interest rate cuts and, after suffering share price declines, many companies are now dividends in an effort to preserve capital. For investors requiring additional income to supplement their portfolio, and in light of what has happened to traditional income producing investments, equity income funds should now be considered.

Historically, equity income funds have focused purely on high yielding shares, although new strategies which use conservative option-based strategies are now entering the marketplace. These funds can be designed to not only generate additional income but also lower portfolio volatility, depending on the strategy.

**Options background in Australia**

Australia has had an exchange traded marketplace for options since the late 1970s. Today, more than 100 stocks have listed options which make up the majority of the ASX 200 by market capitalisation. The options market is well developed and is overseen by the Australian Clearing House, a subsidiary of the Australian Stock Exchange, which ensures that option sellers meet their obligations and an orderly market is maintained.

The uses of options differ between market participants – they can be used across an array of strategies from hedging through to speculative measures. This research paper focuses on the conservative use of options where the ability to generate income is the key consideration.

Figure 2: Option theory recap

| | |
|---|---|
| Call Option | The buyer of a call option has the right, but not the obligation, to purchase a fixed number of shares at a set price on or before a fixed date in the future. In return the buyer pays a premium to the seller (also known as the writer). The writer of a call option keeps the premium but has the obligation to deliver the stock at the agreed price should they be called upon. |
| Put Option | A buyer of a put option receives the right but not the obligation to sell shares at a set price in the future. By purchasing a put option, investors receive some downside protection should the shares fall below the (higher) specified price. |
| *Strike or Exercise Price* | The price at which the option confers the right to buy or sell the shares. |

Source: Zurich Investment Management, July 2009

© PortfolioConstruction Conference 2009.

While some of the mathematics that underpin options and option pricing is complex, an appreciation of what drives an option's worth and how its value can react to changing conditions can give a more effective picture than simply analysing a pay-off diagram. Understanding these principles allows a comparison to be made between returns expected from specific option trades and those expected from equivalent equity positions.

Ultimately, it is an understanding of a portfolio's exposure that should be the key consideration.

By fully appreciating the exposure provided by an option and *how that exposure will change* relative to a change in the underlying share price, but also with regard to the passing of time and variations in interest rates and volatility, it is possible to begin to successfully use options in a portfolio for defined risk reward outcomes.

Figure 3: Six variables that impact on the value of an option

1. The underlying share price - the proximity to the strike price changes an option's value.

2. The time remaining to the expiry date of the option - the longer the time period, the higher the option value.

3. The option strike price - value is highest when the option has intrinsic value, though typically optimal premium is when the option is 'at the money'.

4. Dividends expected before the expiry of the option.

5. Interest rates expected to compensate the cost of carry (ie. holding of positions).

6. The volatility of the share expected during the life of the option.

Source: Denning, H; ASX

By inputting the six variables, including an estimate of expected future share price volatility, it is possible to define a theoretical fair value for an option for the given set of parameters. Or, by isolating the volatility element, and inputting instead the actual market price of the option, it is possible to define a level of volatility that must be matched to the share in order to justify that option price.

In essence, it is possible to determine either of the following;

**1.** Fair value = function of (share price, time, strike price, dividends, interest rate, volatility) or,

**2.** Implied volatility = function of (share price, time, strike price, dividends, interest rate, market price of option)

© PortfolioConstruction Conference 2009.

Having assessed the value of an option, it is then important to be able to appreciate the exposure that is being provided, and how to obtain the overall exposure that is required. The ability to monitor that exposure and the knowledge of how and when to adjust or trade that exposure are key facets of managing any options strategy.

Options react to several forces at once. Their sensitivity to changes in the above parameters provides an important measure of exposure to a share. Changes in the underlying price, the passage of time, changes in volatility and interest rates each has a separate and measurable effect.

Figure 4: Measurable effects

| | |
|---|---|
| Delta | The sensitivity of an option price to changes in the underlying share price |
| Gamma | The sensitivity of delta to changes in the underlying share price |
| Theta | The sensitivity of an option's price to time passing |
| Vega | The sensitivity of an option's price to a change in the underlying share's price volatility |
| Rho | The sensitivity of an option's price to a change in interest rates |

Source: Denning, H

The ability for options to deliver income over and above company share dividends with some downside protection to investors makes them an attractive instrument for professional fund managers. The discussion below focuses on a specific type of option strategy, the 'Buy Write'.

**Using option strategies for income - the Covered Call or Buy Write approach**

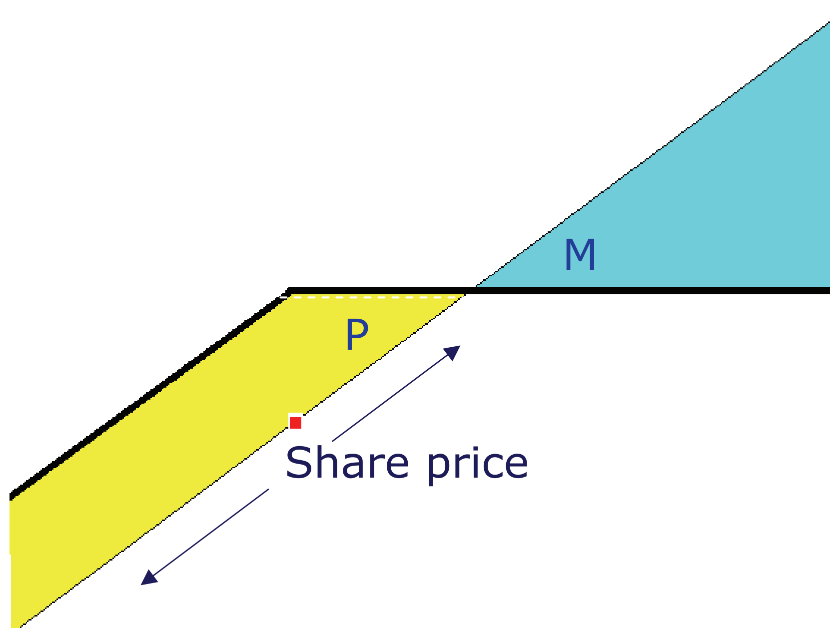
One of the most common option strategies used to generate income is known as a 'Buy Write'. The strategy has been used since the 1970s when options markets first came into existence as call option sellers became one of the key providers of liquidity to the market. It has traditionally been the preserve of high net worth individuals and institutional shareholders. A conservatively run Covered Call strategy can typically target a running yield of 10% per annum, comprised of option premium, dividends and other income such as capital gains.

The Covered Call strategy entails selling call options against part or all of a shareholding, to generate additional income over and above dividends from shares held in an underlying portfolio. The term "covered call' signals that the option writer is not exposed to unlimited losses as the written option is covered by the underlying shares held in the portfolio. The strategy involves the taking of an up-front cash premium as compensation for foregoing possible future returns from the underlying shares during a defined finite period.

© PortfolioConstruction Conference 2009.

The key to the basic strategy is depicted in Figure 5 below where the objective is to maximise the premium earned (P) for a given exposure sold (M). Finding the right combination of strike price (premium), proportion of holding written against, and time to expiry are therefore key components to any investment decision.

Figure 5: Covered call strategy




Source: Denning Pryce

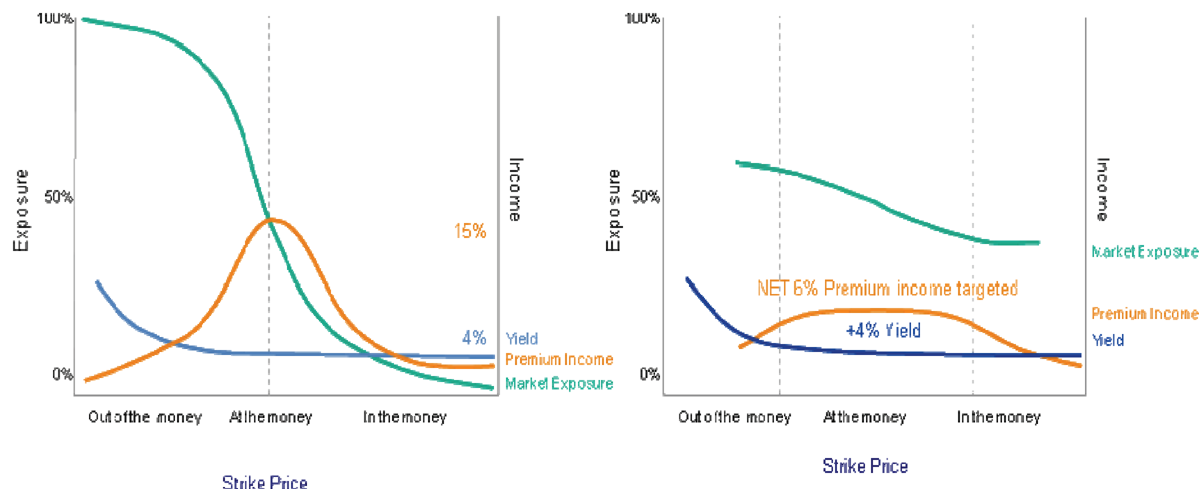
As can be seen above, the trade must deliver sufficient premium to deliver the required income and in the event of being "called away", the exercised return must ensure that the position justifies forgone return. As such, a portfolio's return ratio needs to have an appropriate balance between the capital and premium components of return.

While the premium earned from covered writing can insulate a portfolio from small share price falls, the portfolio is still exposed to the downside. In order to mitigate some of this risk, part of the proceeds from the option premium can be used to purchase a put option with a strike price below the prevailing share price. Essentially this trade is akin to a protective collar and can enhance downside protection below the put's strike.

Simple call selling against a complete portfolio is shown in Figure 6 below. By selling calls against a portfolio of the shares and managing other market exposure risks, a fund's targeted exposure and income generating profile can be structured as depicted in Figure 7.

© PortfolioConstruction Conference 2009.

Figure 6: Call selling against a complete portfolio Figure 7: Structuring exposure and income




Source: Denning Pryce

As an option moves out of the money, market exposure increases as it is less likely the writer of the option will be called. Conversely, if an option is deep in the money, market exposure falls as it is likely the writer will be called. The other two lines show the sources of income: dividends; and, the premium from the Buy Write. It is the Premium Income line which is of most interest. Writing calls at or slightly out of the money with an appropriate duration can generate an annualised income of approximately 15%[9]. Goldman Sachs' "An Encyclopedia of Australian Buy Write Strategies and Returns" (2004)[i], notes that this gross option premium is achievable for (particularly three month) options up to 5% out of the money.

The benefits of using a Buy Write strategy have been the subject of numerous studies, though the May 2005 article, "Buy Writing Makes Comeback as Way to Hedge Risk" in the magazine *Pensions & Investments*[ii] has been attributed to some degree as renewing interest in its use. The article cites the development of the first major index for the strategy, the Chicago Board of Options Exchange (CBOE) S&P 500 Buy Write Index (BXM) in 2002, along with the publishing of an Ibbotson Associates (2004)[iii] case study on Buy Writes.

The BXM Index is based on buying a portfolio of S&P 500 stocks and writing covered near term S&P 500 index calls, slightly out of the money and generally on the third Friday of each month[10]. The development was launched in conjunction with Whaley (2002)[iv] who found that under several standard measures of investment performance, the covered call strategy has been unusually

[9] Source: Denning Pryce; Goldman Sachs Study "An Encyclopedia of Australian Buy Write Strategies and Returns, 2004.
[10] Source: CBOE

© PortfolioConstruction Conference 2009.

successful, earning almost as much as the S&P index, with substantially lower risk. Feldman & Roy (2004)[v] had similar findings using a longer time series[11].

The Australian Stock Exchange launched the S&P/ASX 200 Buy Write Index (XBW) in July 2004 and research from the Securities Industry Research Centre of Asia Pacific (SIRCA) and Capital Markets Cooperative Research Centre (2004)[vi] found that over a 15-year period from December 1987 to December 2002, quarterly option contracts, just out of the money, resulted in an average quarterly return of 2.96% versus 2.40% for the S&P/ASX 200 Accumulation Index at a lower level of risk.[12]

**Asset allocation considerations for a diversified portfolio**

There is a need for income across a broad section of the investor base, whether in retirement or accumulation mode, or for investors who may require a steady cash flow to meet other commitments. This has been evidenced by research house van Eyk Research Limited (van Eyk) in July 2008 taking the view to make a specific allocation to equity income funds. van Eyk recommended up to 10% be allocated to equity income funds in a diversified portfolio, coming from an Australian equity allocation of 35%.[13] This is an endorsement that this strategy is a genuine and real prospect for income seeking investors. The discussion below summarises how each market segment can consider the attractiveness of equity income funds.

*Retirees*

The need for income generating portfolios is particularly important for retirees who require both wealth protection and a stable income stream to fund their retirement. Equity income funds with an investment objective of high income and low volatility are well suited to many retirement strategies and can sit securely alongside other income products. Longer-term conservative growth can also play an important role in dealing with longevity risk.

*Investors in the accumulation phase*

The low volatility objective of equity income funds means that these types of funds may also suit those requiring a defensive allocation in a diversified Australian share portfolio. If market conditions remain unstable, the lower volatility objective could potentially outperform the broader Australian sharemarket.

*Gearing*

Given the current market it is unlikely that gearing is at the top of many investor's investment strategy list. Nonetheless, a fund with the investment objectives of low volatility and high income could offer some compelling applications in a sensibly geared portfolio. For example, if investors choose to gear into equity income funds, the low volatility objective could lessen the likelihood of a

[11] Feldman & Roy (2004) found the compound annual return of the BXM index over the almost 16-year history of this study is 12.39%, compared to 12.20% for the S&P 500.

[12] (XBW standard deviation 5.78% versus S&P/ASX 200 Accumulation Index standard deviation 6.15%).

[13] Source: Page 17, van Eyk Australian Equity Income Review Overview, May 2008

© PortfolioConstruction Conference 2009.

margin call whilst the higher income generation can be used to fund part of the margin loan. These types of funds could also be considered for instalment gearing within a self managed super fund.

**Conclusion**

Every option transaction is an exchange of one component of risk - and therefore return - for another. With specific portfolio objectives that relate to income, volatility and market exposure, individual option strategies can be focused on delivering these goals. Options strategies where an unknown component of a return is sold for a known and accepted level of income can be deployed to generate a consistent level of income from a portfolio of shares while reducing the volatility of that portfolio. In some instances, a Buy Write over an index portfolio can perform similarly to an index return but at lower levels of risk. However, it is possible through spending some of the option premium to take additional measures that provide further protection to the downside and indeed upside (through long call positions) – an attractive proposition for income seeking investors.

With a litany of issues in the income space, equity income funds that use conservative options strategies provide a clear point of differentiation in the Australian market. Importantly, these funds can target a specified running yield, pay a regular income stream and provide daily liquidity. These features may be appealing to those who require income and want to avoid the pitfalls of investing in alternative funds that have engineered their income through gearing or by investing in complex, opaque securities. The distinct strategy can be used as an important part of an investor's income portfolio or part of a defensive equity allocation.

© PortfolioConstruction Conference 2009.

## Bibliography

Denning, H. "Equity Options. Valuation Trading & Practical Strategies."

Saba, M. & Bishop, M. "An Encyclopedia of Australian Buy Write Strategies and Returns."

**Endnotes**

---

[i] Saba, M. & Bishop, M., "An Encyclopedia of Australian Buy Write Strategies and Returns", Goldman Sachs, 2004 p20.
[ii] Crawford, G. "Buy Writing Makes Comeback as Way to Hedge Risk." Pensions & Investments. 16 May 2005.
[iii] Feldman, B. And Roy, D., "Passive Options-based Investment Strategies: The Case of the CBOE S&P 500 Buy Write Index", Ibbotson Associates, July 2004.
[iv] Whaley, R, "Return and Risk of CBOE Buy Write Monthly Index", The Journal of Derivatives, Winter 2002.
[v] Feldman, B. And Roy, D., "Passive Options-based Investment Strategies: The Case of the CBOE S&P 500 Buy Write Index", Ibbotson Associates, July 2004.
[vi] SIRCA and Capital Markets Cooperative Research Centre, "Return and Risk of Buy Write Strategies using index options: Australian Evidence", Feb 2004.

**Disclaimer:** This publication dated July 2009 is given in good faith and derived from sources believed to be accurate as at this date, which may be subject to change. It should not be considered to be a comprehensive statement on any matter and should not be relied on as such. Information contained in this document is of a general nature only. It does not constitute financial or taxation advice. The information does not take into account your objectives, needs and circumstances. We recommend that you obtain investment and taxation advice specific to your investment objectives, financial situation and particular needs before making any investment decision or acting on any of the information contained in this document. Subject to law, none of the companies of the Zurich Financial Services Australia Limited Group ABN 11 008 423 372, nor their directors or employees: gives any representation or warranty as to the reliability, accuracy or completeness of the information; or accepts any responsibility for any person acting, or refraining from acting, on the basis of information contained in this story. No part of this document may be reproduced without prior permission from Zurich. Australian Financial Services Number 232510, 5 Blue Street, North Sydney NSW 2060. PNOE-003141-2009

© PortfolioConstruction Conference 2009.