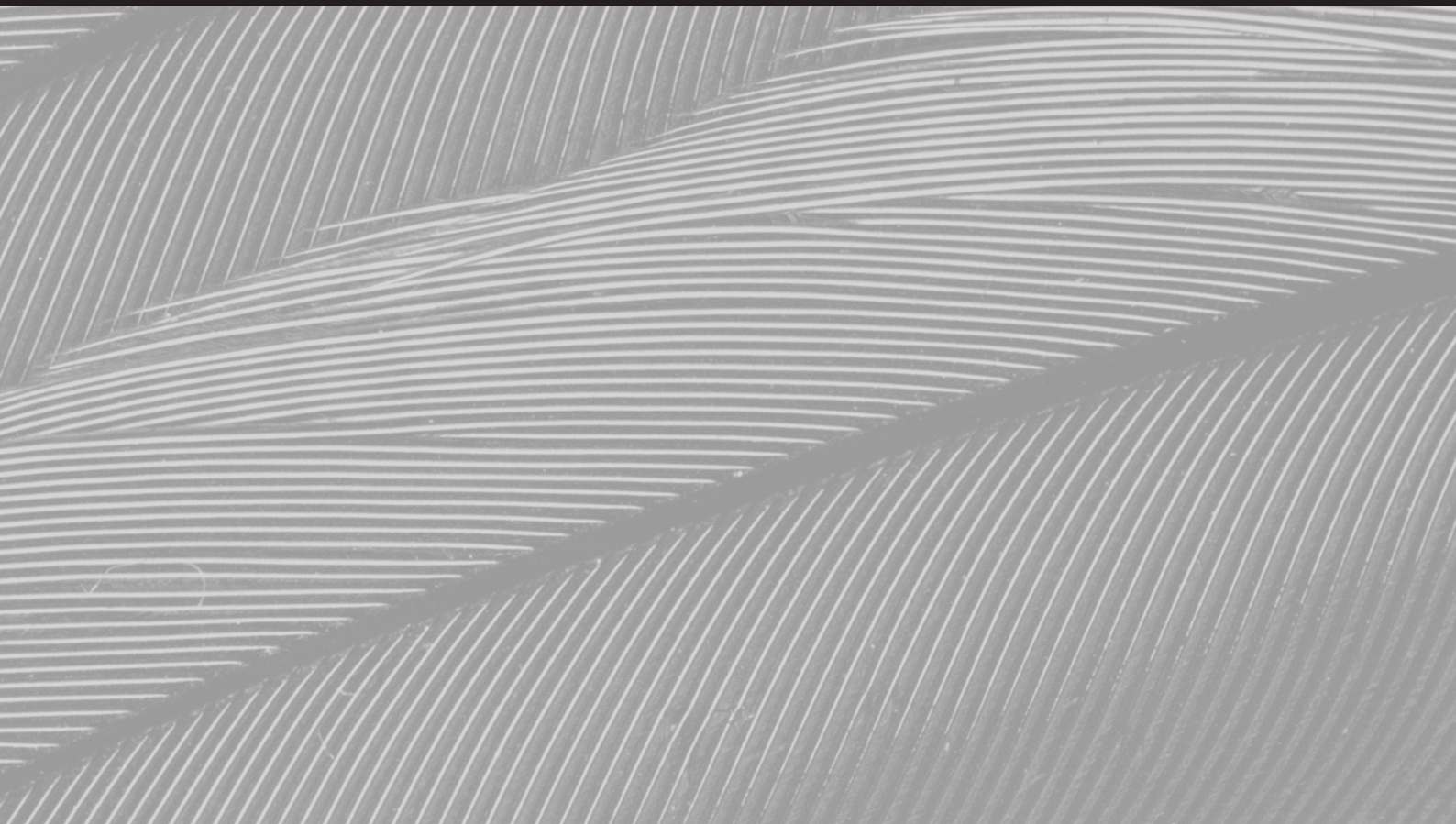




Fixed Income Management at Ardea

Using Derivatives to Protect Portfolios and Capture Opportunities



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Contact details

Louise Watson
Senior Institutional Business Development Manager
Fidante Partners
Tel: 02 9994 7335
Email: lwatson@challenger.com.au
Web: www.ardea.com.au

About Ardea



Fixed income investment managers

Ardea Investment Management is a specialist fixed income investment boutique with a focus on delivering consistent alpha to clients. Ardea's investment process is supported by a highly intuitive risk system. Formed in 2008 by its four founding principals, Ardea has a long and successful track record in managing fixed income portfolios, including a wide range of traditional defensive products, inflation-linked bonds, and also benchmark unaware and objectives-based solutions.

The Ardea Investment Team is made up of highly experienced investment professionals with varied backgrounds. Ardea's boutique structure not only allows for flexibility, ongoing innovation and adaptability, but also means that Ardea's interests are aligned directly with those of their clients.



Ardea was established to provide clients with a unique fixed income alternative.

Fixed Income Management at Ardea



Introduction

In the period following the Global Financial Crisis (GFC), investors have come to better understand risk. It is fair to say that before 2007, investors would have assumed that fixed income securities were all defensive assets. However, the pricing of mortgage backed securities and investment grade credit in the period following the collapse of Lehman Brothers showed that this is not always the case. In particular, the GFC put to rest the long-held view that fixed income securities would hold their value, even while equity markets collapsed around them. As a result, the total risk in a portfolio is now being assessed in a more complete and rigorous way.

A particular focus has become the overall value gained by taking risk against the potential return; and specific objectives of minimising risk per unit of return are being set within portfolio mandates. Those investors seeking better outcomes with respect to portfolio objectives are now looking to set a return target, while also trying to minimise the risk – or volatility – in their portfolio for that return objective.

Ardea specialises in the management of fixed income strategies, with a particular skill set in reinforcing and reviving the defensive nature of these instruments. In the post GFC world, Ardea has been working with investors to:

- ensure that the capital value of assets are protected;
- manage the risk that the value of the portfolio will not match the rate of inflation; and
- earn a return above inflation with only limited credit risk and no equity risk.

It is Ardea's broad expertise across the full range of fixed income markets and fixed income derivative products which enables their strategy to deliver against a low risk, medium return target.

Ardea's investment philosophy is to access all parts of the fixed income markets, including derivatives, to aid better investment returns, lower volatility and more effective risk management.

This paper:

- describes particular investment challenges faced by investors and how Ardea's strategies help meet these challenges;
- discusses the means by which Ardea manages the balance between risk and return and the use of derivatives in the portfolio; and
- discusses the new regulatory disclosure regime which comes into force this year and its application to Ardea's portfolios.



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Ardea's Investment Strategy

Ardea focuses its investment strategy on meeting clients' investment objectives. Across most clients there is a need to ensure that:

- the capital value of their investment is protected;
- the real value of their investment is not being eroded; while
- their money is still being 'put to work' by earning a reasonable return without excessive risk.

The following seeks to explain the importance of these objectives by discussing the importance of preserving capital, why inflation matters and how inflation risk can be mitigated, the unique features of the inflation-linked bond market, and the role of derivatives in the fixed income market.

Preserving capital

For an investor seeking an allocation to a defensive asset class, fixed income has traditionally been the asset of choice. The debt markets, by offering a senior claim on the assets of a company, provide considerable security over an investor's capital. In contrast, the equity markets provide ownership of only the residual value of a company after all other claims have been met. This exposes the equity investor to potential loss of capital.

Whilst it is true that significant portions of corporate debt and sovereign debt have been called into question during the financial market upheavals of recent years, the fact remains that if a company or government is unable to repay its borrowings, then its equity is in all likelihood worthless well before that point. Fixed income investments therefore continue to perform their traditional role of delivering capital preservation to investors, with minimal risk of loss of capital.

For these reasons, Ardea's approach to meet this capital preservation objective is to build upon a solid foundation of high quality fixed income assets, which at a practical level means government bonds.

Why worry about inflation?

For an investor, managing the inflation risk of the portfolio is key to ensuring the long term return of their investment. Most investors will be familiar with the long-term return objective of a percentage over inflation – usually expressed as a 'CPI plus' objective. For example, many balanced superannuation funds will advertise that their objective is to provide a return of, say, CPI + 4%. We don't often stop and think about what this means. These objectives, linked to inflation, are intended to encourage a focus on ensuring the purchasing power of your money is doing more than just keeping pace with price inflation.

Let's look at this from the perspective of an Australian employee who plans to retire in 10 years' time. They may have calculated that they need a retirement income of \$50,000 per annum for a comfortable lifestyle. However, as prices of goods and services will have increased over that 10 year period, they will need more than \$50,000 per annum to pay for that lifestyle. A modest inflation rate of 2.5% will increase their income needs in retirement to around \$64,000. To meet this goal, the investor needs to consider the return **above** the inflation rate experienced over this period.



The debt markets, by offering a senior claim on the assets of a company, provide considerable security over an investor's capital.

How to manage inflation risk

So how can inflation protection be built into the investment portfolio? Most financial advice will advocate a diversified approach to investment. Consistent with widely-accepted portfolio theory, this ensures that risks are spread across a variety of different assets to reduce the overall, long-term volatility of the investment portfolio. Many of these assets will have some relationship to inflation. For example, equities are likely to do better in a period of higher economic growth, when inflation is also expected to be higher.

But if there is a genuine concern about protecting the real value of money – reducing the inflation risk – many investors will look to invest in assets which have a more direct relationship to inflation, as these assets are likely to hedge inflation more effectively.

Real assets are generally accepted as good hedges for broad inflation in the economy. Examples include:

- **Property:** for example, many superannuation funds hold large portfolios of diversified property assets, including retail, commercial and industrial properties. These generate an income stream from rent that is often indexed to inflation;
- **Infrastructure assets:** where there is a strong linkage between the value of the infrastructure asset and the prices which are paid for the service delivered e.g. water, electricity;
- **Commodity assets:** for example oil, which may be the driver of inflation pressures in the economy; and
- **Precious metals:** gold, which has historically provided a hedge against inflation.

However, the actual relationship between inflation and these asset classes varies over time, and is seldom effective in hedging against sudden inflationary impacts. The risk that these investments do a poor job of hedging inflation, and not to mention their potential volatile capital values, can seriously undermine the real value of a portfolio.

It is therefore important to look to other assets, such as inflation linked bonds, that provide an even closer match to future inflation as a tool to hedge against inflation.



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The Inflation Linked Bond market

Inflation-linked bonds (ILBs) are government bonds and are usually regarded as the purest form of inflation protection due to the fact that their principal is indexed to inflation. Investors wanting to protect against inflation can buy and hold physical inflation linked bonds as part of their overall portfolio risk management strategy.

A buy and hold strategy can be easily implemented through a passive index-replicating mandate. However, just replicating the index does not recognise the unusual and unique characteristics of the inflation linked bond market. Taking advantage of these unique characteristics can deliver better portfolio returns for lower risk.

The key characteristics which differentiate the inflation linked bond market from other more efficient investment markets are: the additional complexity which comes with layering an inflation indexation on top of a regular fixed coupon bond; the lumpiness of issuance and maturities; and the highly complex derivative market which has built up around this asset class.

- Most inflation linked bonds in Australia are a specialised form of bond issued by the Australian government. They differ from regular government bonds in that the capital value of the investment is adjusted by reference to movement in Australian inflation, measured by the Consumer Price Index (CPI). The 'interest rate' paid on the bond also increases in line with the adjusted capital value. This creates complexity in pricing, trading, and market dynamics. Specialist managers, such as Ardea, are able to exploit these for their clients.
- The specialised nature of inflation linked bonds results in issuance that differs from conventional bonds, with issuance occurring less frequently, but for longer terms. This reflects demand for these assets from a different set of investors to conventional bonds. Expertise in gauging demand at primary market issuance, and in managing longer gaps between primary issuance, is therefore particularly important.

- Over the past decade, an over-the-counter (OTC) derivatives market has emerged which allows better risk management of inflation linked portfolios. In particular, inflation swaps have been developed which allow specific hedging of inflation risk for varying maturities. This places the inflation market on a similar footing to the bond market, where futures and interest rate swaps, as well as a range of other instruments, are used to hedge interest rate risk.

Taken together, these characteristics create a diverse set of opportunities which are only accessible by using the broadest set of instruments available to the portfolio manager. This set of instruments naturally includes derivatives, which represents a highly liquid, significant portion of the market and in some cases the vast majority of market activity.

Portfolio managers who are limited to physical securities will find managing fixed income portfolios challenging.



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Ardea's investment approach to managing inflation risk

Ardea believe that derivatives are critical to manage both the interest rate risk and inflation risk of defensive portfolios. Derivatives allow the fund manager to better target both risks and opportunities. Physical-only and index replication portfolios will not have the flexibility or tools to properly manage risk and deliver the additional returns that are available through the derivative market. Ardea's investment philosophy is to use derivatives to lower volatility, provide more effective risk management, and provide better, more stable investment returns.

Ardea's benchmark ILB strategy can be broken down in terms of physical or derivatives holdings and contribution to risk. The use of a broad range of diversified instruments is readily apparent in the listing of portfolio contributions to risk in Figure 1 which compares the Ardea construction of an inflation risk protection portfolio against the index benchmark. In contrast the benchmark contains physical securities only.

Historical returns demonstrate the effectiveness of this approach. This can be seen in the historical track record in Figure 2 which shows stable return outcomes over all historical periods. The reduction in risk is confirmed by the expected monthly return in Figure 3, which is higher, even after adjusting for risk.

Figure 1 – Contributions to Risk: Portfolio and Benchmark (December 2014)

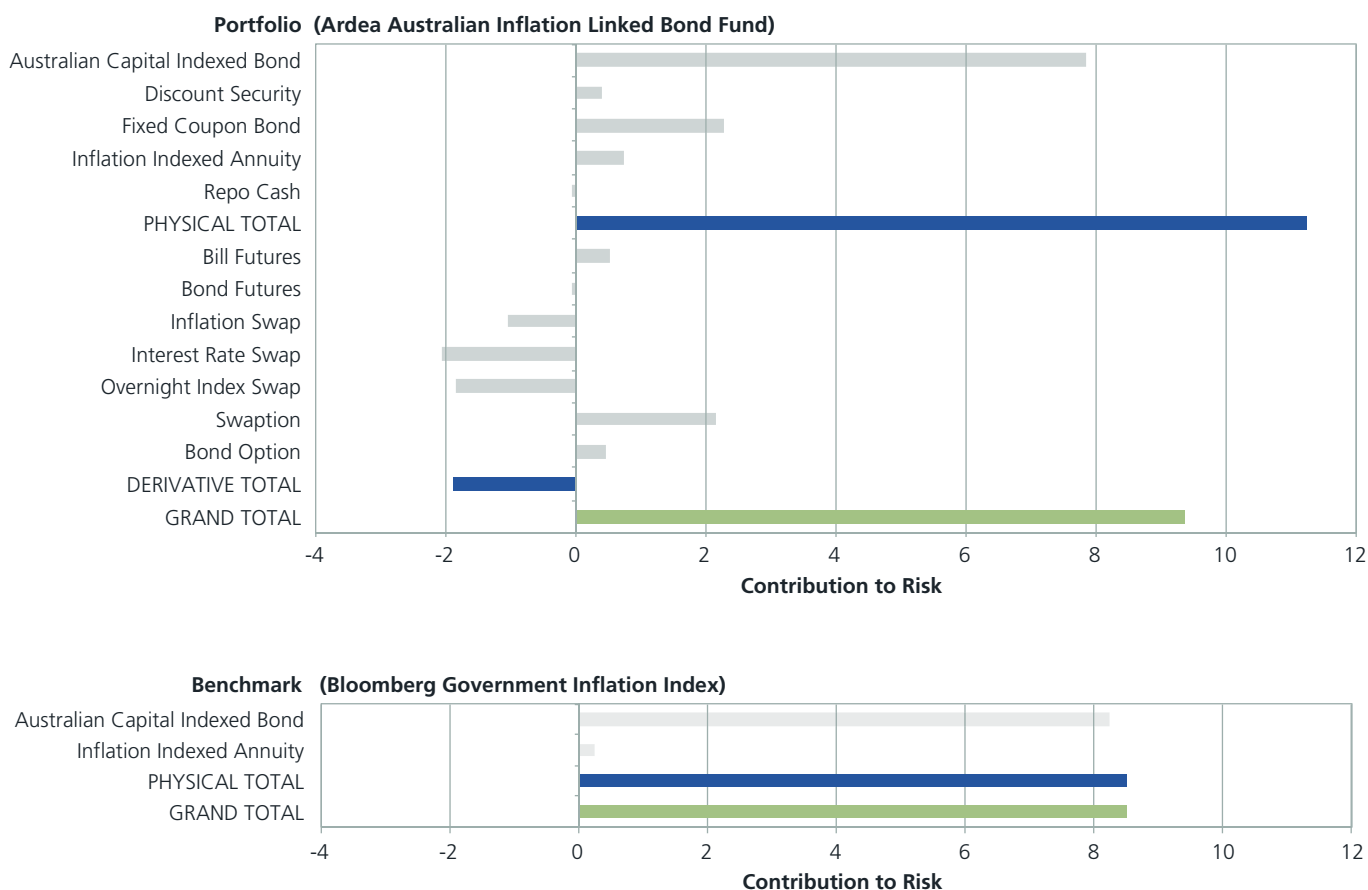
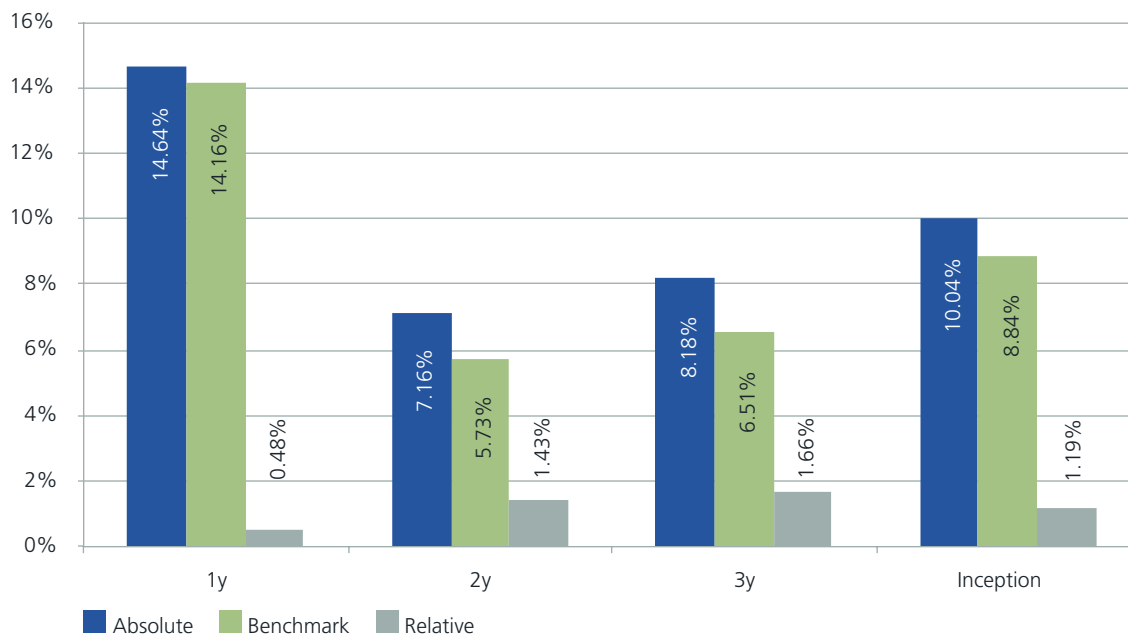
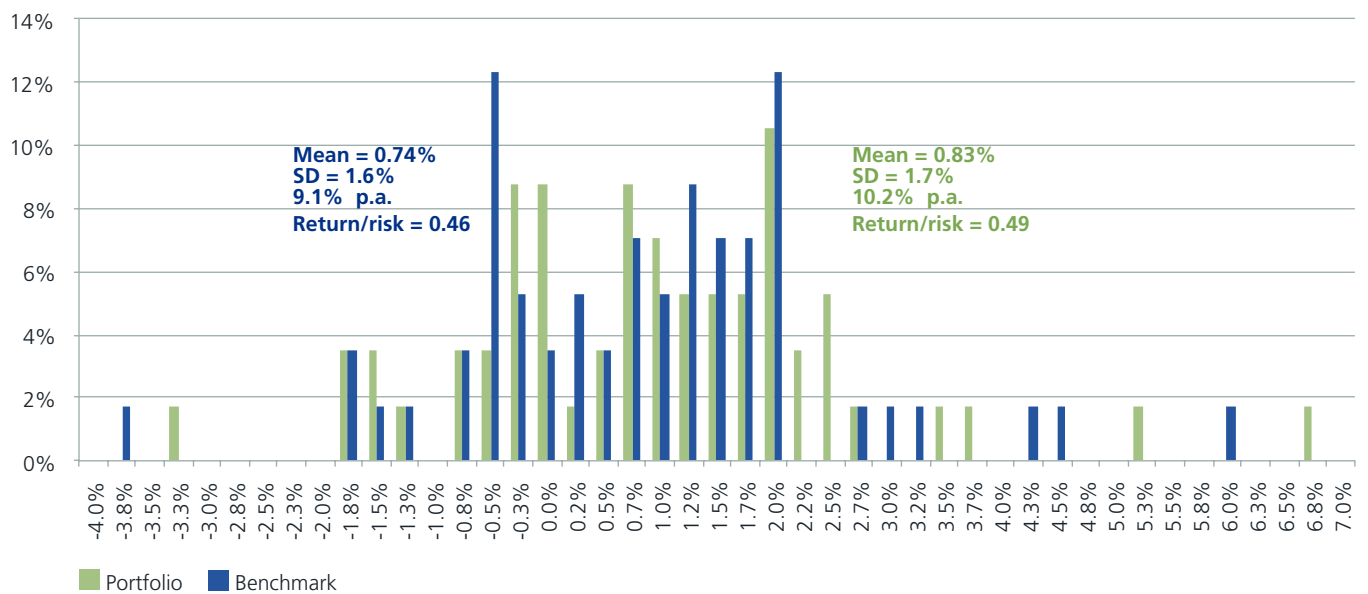


Figure 2 – Performance Track Record for Ardea Australian Inflation Linked Bond Fund (December 2014)



Past performance is not indicative of future performance, after fees and expenses, assuming distributions reinvested.

Figure 3 – Distribution of Monthly Returns for Ardea Australian Inflation Linked Bond Fund (Apr-2010 to Dec-2014)



Past performance is not indicative of future performance, after fees and expenses, assuming distributions reinvested.

Making sure your money is working hard

In the section above, we discussed Ardea’s ability to assist investors with inflation protection. Even when focused on inflation linked bonds alone, Ardea looks to take advantage of the additional complexity of the market, the irregularity of the issuance programme vis-à-vis conventional bonds, and the availability of highly liquid derivative products. These are all used to add additional return to the portfolio (‘alpha’) without significantly increasing the portfolio’s risk profile.

However, where investors are able to invest more broadly, Ardea manages outcome-based strategies which actively manage a portfolio of defensive assets to deliver a specific return. These strategies cover the full fixed income universe as shown in Figure 4, although are predominantly invested in the government or semi government markets, with little credit exposure.

These strategies are particularly useful when the expected inflation risk is lower. In these environments, a focus on overall return may be more sensible, albeit within the defensive asset space. The aim of such an outcome-based strategy is to deliver lower volatility without compromising returns. Figures 5 and 6 show how Ardea’s Inflation Plus strategy outperforms a broad government bond index, delivering both higher returns and lower volatility. There is no reason why the Ardea Inflation Plus strategy should not sit alongside other defensive assets as part of a diversified portfolio, and indeed many reasons why it should.

Figure 4 – Investment Opportunity Set

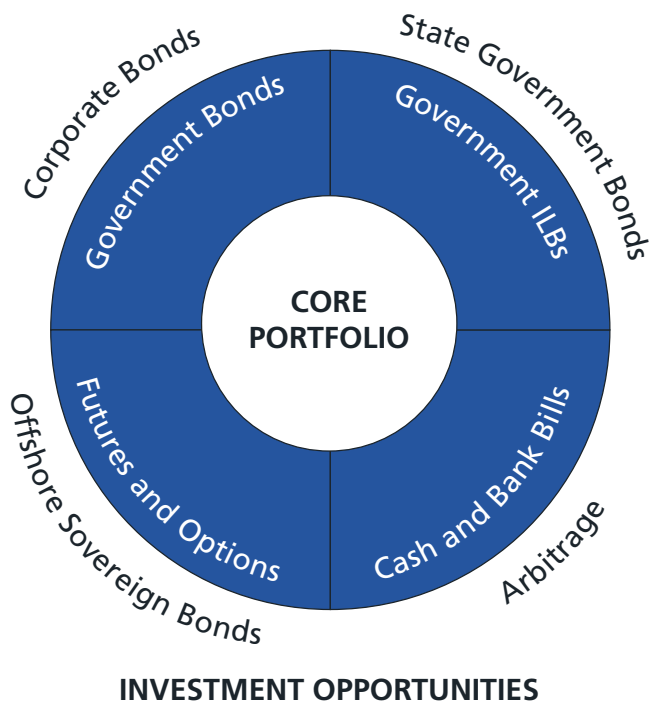
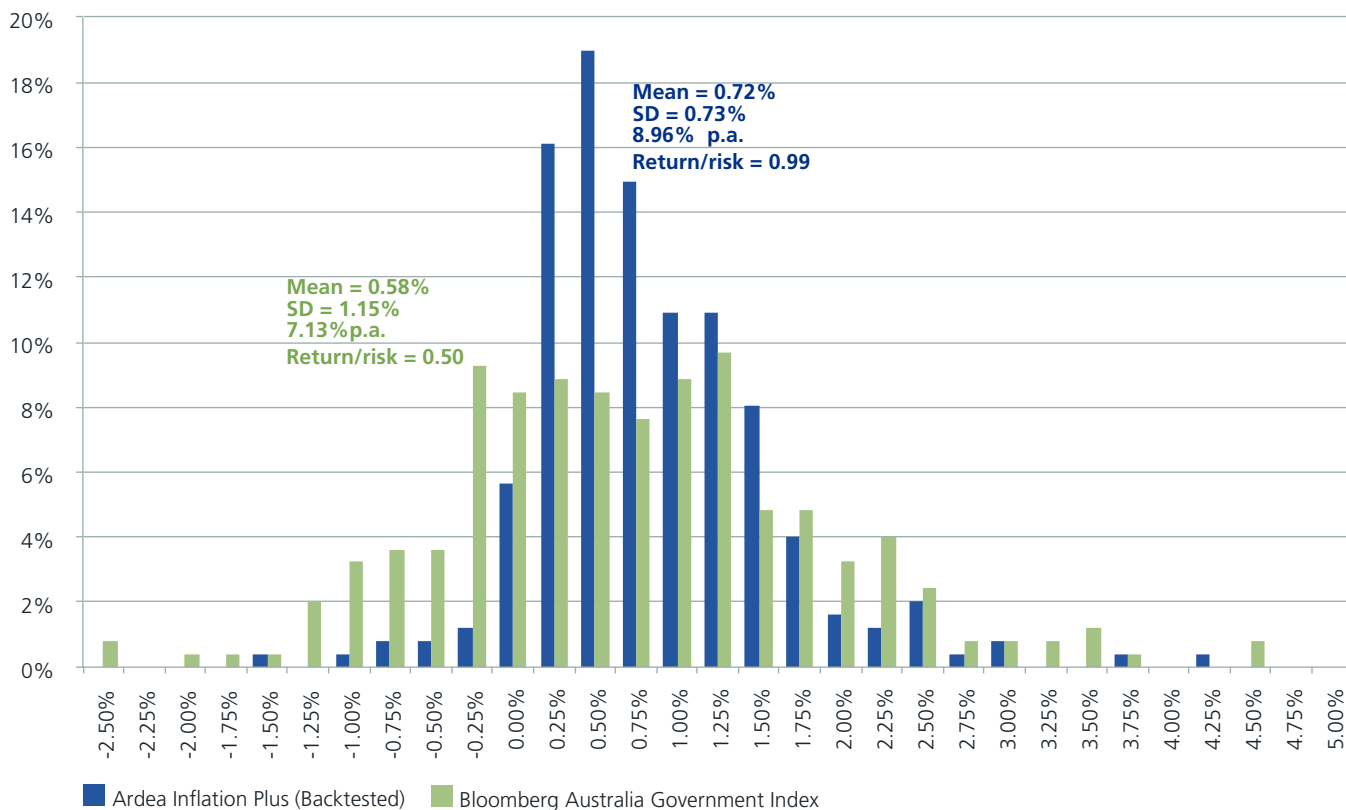
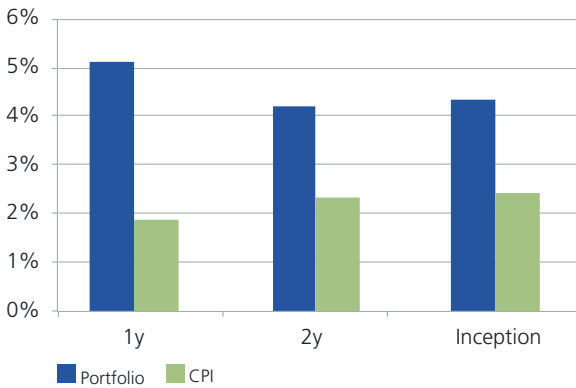


Figure 5 – Distribution of Monthly Returns for Ardea Inflation Plus (1994-2014)



This graph represents the relative frequency of monthly returns for the Ardea Inflation Plus Strategy from April 1994 to December 2014. Returns have been calculated by applying Ardea’s investment strategy (other than alpha strategies) over the target investment universe during the relevant period. The principles used include Ardea’s investment framework and rules-based methodology, which can be replicated on a mechanistic basis. This graph also shows the relative frequency of monthly returns for the Bloomberg Australia Government Fixed Income Index over the same period. The Government Fixed Income Index was selected because it provides the broadest coverage of the Australian fixed income universe (excluding credit) and is likely to be the most relevant comparison for the majority of investors.

Figure 6 – Performance Track Record for Ardea Inflation Plus Fund (December 2014)



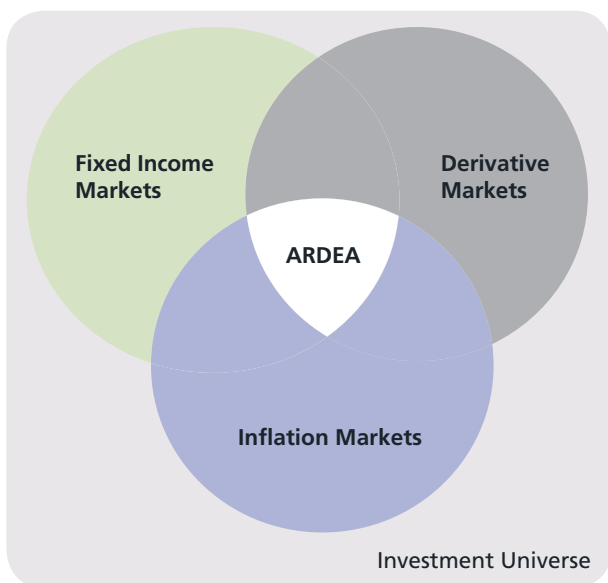
Past performance is not indicative of future performance, after fees and expenses, assuming distributions reinvested.

Making use of all available instruments to manage risk and capture opportunities means that Ardea necessarily operates across a number of different segments of the fixed income markets. These include conventional physical bonds, the pure inflation market as represented by both bonds and derivatives, and the OTC derivatives market itself. The Ardea Inflation Plus strategy relies on combining opportunities from all three sectors of the market.



The Ardea Inflation Plus strategy relies on combining opportunities from all three sectors of the market.

Figure 7 – Use of Multiple Sectors for Ardea Inflation Plus Strategy



Effective use of derivatives:



To protect portfolios and capture opportunities

To protect portfolios and capture opportunities

Ardea's inflation protection and outcome-based Inflation Plus strategies rely on the additional flexibility and return opportunities that can be provided by using derivatives. There is sometimes a misperception that derivatives add risk to an investment portfolio. However, used appropriately, and without leverage, derivatives are an extremely effective way to reduce risk in a portfolio and can help unlock potential to add to returns for little additional risk.

Below we discuss:

- the ways in which derivatives can reduce risk in a portfolio;
- the concept of counterparty risk and how it is measured within a portfolio;
- the ways derivatives are used to generate additional alpha for clients without significantly increasing portfolio risk; and
- the changing regulatory environment which will impact the way in which derivative exposures are reported to and by the regulator.

Reducing risk

Derivatives allow the portfolio to be managed efficiently and flexibly. This is true in both normal market environments and periods of market stress. When markets are functioning normally, derivatives provide similar or cheaper **transaction costs** than equivalent physical securities, with the added advantage of not requiring a corresponding movement of cash to facilitate a change in the portfolio's risk exposure. Over time, the cheaper transaction costs of derivatives can amount to significant savings. This is especially important in the fixed income world where even small incremental returns are significant.

In stressed market environments, the **liquidity** advantage that derivatives bring to managing risk is important. This is because, unlike other markets, the derivative markets tend to be more liquid and thus tend to keep trading, whereas physical markets can seize up more readily, due to their reliance on the availability of specific physical securities. This was the case during the GFC, where a broad range of participants were unable to transact in physical securities and, as a result, used the derivative markets to hedge risk on physical portfolios.



Used appropriately, and without leverage, derivatives are an extremely effective way to reduce risk in a portfolio and can help unlock potential to add to returns for little additional risk.

As well as cost and liquidity benefits, a portfolio with access to derivatives is also better able to **manage risk** than a physical portfolio alone. This is due to the customisability and flexibility offered by derivatives, which can be tailored to reflect the precise needs of the portfolio.

Importantly, a portfolio using derivatives is also able to gain access to a much **broader range of opportunities** across the fixed income markets. For example, using physical bonds only, a portfolio can either take on all of the risks associated with owning inflation linked bonds, or all of the risks on nominal bonds, but regrettably it can do very little in between these two extremes. Use of the broader opportunity set, as provided by derivatives, is important to ensure that potential returns on defensive portfolios such as fixed income are maximised.

Managing counterparty risk

Derivatives offer significant benefits in managing the market risk in a portfolio. But using them does expose the portfolio to an amount of counterparty risk.

Counterparty risk is the exposure to a failure of delivery under a contract with another market participant. Put another way, it is the risk that your counterparty doesn't net its financial obligations under a contract. It is sometimes called default risk, as it covers the risk of a default on an agreed contract. It is quite distinct from what most people refer to as 'credit' risk, which is the risk of price movements as the result of the change in credit quality of the issuer of a security.

Good risk management practices will require that all transactions are undertaken with a cross section of high-quality counterparties. In the box overleaf, we describe counterparty risk management best practices. Ardea follows all of these practices in managing client portfolios. If these practices are followed, it will usually be the case that on a risk versus return basis, the additional risk from counterparty exposure will be relatively small when measured against the market risk protection that the derivative positions can offer.

The small amount of counterparty exposure can be shown by looking at the possible loss to individual counterparties across the portfolio. The table below shows that, under normal circumstances – assuming a five-day recovery window – the mark to market exposure to individual counterparties is small. Even the default of the largest derivative counterparty would result in an expected loss of only 0.09% of the value of the total portfolio. This compares with the standard exposure to one of the major four banks through bank bills of around 15% of the portfolio. You could argue that this doesn't take into account stressed market environments, however even multiple counterparty defaults would still result in only a small exposure compared to the much larger amount of credit risk that arises from other physical holdings in the portfolio.

Figure 8 – Ardea Australian Inflation Linked Bond Fund: Top Derivatives Exposures (December 2014)

Counterparty	Expected loss on default
Citibank	0.09%
Deutsche Bank	0.09%
ANZ	0.08%
NAB	0.08%
Westpac	0.06%



As well as cost and liquidity benefits, a portfolio with access to derivatives is also better able to manage risk than a physical portfolio alone.

Counterparty Risk Management Best Practices

Counterparty selection criteria

Ensuring the quality of your counterparty in any transaction is the first and most important criteria. Any approved counterparty should meet agreed minimum standards. The exact standards and levels may vary depending on an investor's policies and requirements, but will generally involve a minimum investment grade credit rating of typically 'A' or above, as well as a range of qualitative criteria. Ardea undertakes a formal process for counterparty selection, monitoring and approval. This process evaluates the overall quality and capabilities of a financial institution for approval as a trading counterparty, before any derivatives exposures can be initiated. Among other criteria, this requires that counterparties retain a short-term financial strength rating of A-1 or greater.

Concentration risk limits

Concentration risk to individual counterparties is also limited by investment guidelines for the fund or mandate. These limit exposure to a particular counterparty to a specified portion of the fund or mandate. Ardea's policy and practice is to manage counterparty risk consistent with other forms of credit risk, such as credit risk arising from holding physical bonds issued by the counterparty. For example, if the fund held a 1% exposure from derivatives to one of the major banks, as well as a 5% exposure to the same bank say from short-term bank bills, then the total exposure to the failure of that entity would be 6%.

Qualitative criteria

Qualitative criteria such as investment expertise, quality of operations, settlement procedures, and market expertise are required of prospective counterparties. It is important that a counterparty can properly manage all operational aspects of a derivative transaction, and can act swiftly to perform their obligations as required.

Collateralisation and margin payments

Collateralisation – and the ongoing adjustment of collateral through margin payments – is an important risk mitigation feature of derivative transactions. Collateral practices are governed by a specific legal agreement between the counterparty and the client. This agreement is known as a Collateral Service Agreement or CSA. The CSA requires the current market value of any derivative to be posted as collateral, with daily adjustments as market value fluctuates. This protects the party who is owed money, potentially a large amount, from the risk of default of the other party. The key benefit of collateralisation is that, in the event of a default, the value of the derivatives contract is immediately realised via the value of collateral held. A small residual risk remains due to margining occurring only daily. This amount however reflects the value of one day's market movement, which is generally very small compared to the overall value of the derivatives contract.

By implementing multiple layers of protection, via counterparty selection criteria and daily collateralisation and margining, any incremental risks arising from derivatives activity can be reduced to a negligible amount. This provides comfort that the significant benefits to risk management and potential returns from derivatives are not incurring any hidden costs in the form of operational risk or counterparty credit risk.

Derivatives add alpha, not risk

In adding additional value for their clients, Ardea use the opportunities that arise in trading shorter term interest rate swaps. These opportunities are particularly appealing as they provide the opportunity to generate alpha (return from active risk) without exposing the portfolio to significant outright price risk. Ardea do not, at any time, leverage the portfolio through derivative positions.

The lower risk profile of this trading is driven by the very short term to maturity of the derivatives. For all derivative products, risk increases with the term to maturity. This makes sense conceptually – most uncertain events are less predictable if they are going to occur a long time in the future, than if they will occur in the next week or month. Around half of Ardea’s derivative exposure – 46.6% of gross exposures at December 2014 – comes from their trading in instruments at the very short end of the yield curve, which have substantially less risk than longer dated instruments.

The difference in risk between a short-term overnight indexed swap (OIS) and longer-term conventional interest rate swaps (IRS) is illustrated in Figure 9. The table shows that an IRS and an OIS with the same notional size of \$10m have very different changes in market value for the same movement in interest rates. The OIS drops in value by only 0.08% of its market value, while the 10-year swap loses 10%.

The use of short-term derivatives such as OIS provide valuable opportunities for a portfolio to better manage risk, particularly those risks arising from changes in short-term interest rate expectations. Taking advantage of these opportunities can result in larger notional amounts of derivatives being held in the portfolio. Any additional risk, however, is relatively small.

Figure 9 – Risk on Interest Rate Swap (IRS) and Overnight Indexed Swap (OIS)

	10-year Interest Rate Swap (IRS)	1-month Overnight Indexed Swap (OIS)
Notional Amount	\$10m	\$10m
Gross exposure as reported to regulator	\$10m	\$10m
Interest Rate	3.5%	2.5%
Impact of 1% or more in rates		
Conceptual cost	Miss out on 1% interest for 10 years	Miss out on 1% interest for 1 month
Dollar cost	1% x 10 years x \$10m = \$1,000,000	1% x 1 month x \$10m = \$8,333
Per cent cost	\$1m ÷ \$10m = 10% loss	\$8,333 ÷ \$10m = 0.08% loss

Changing regulatory environment

Derivative instruments have long had a reputation for exposing investors to unintended risks. While derivatives were first developed to improve the ability to reduce risk, their scope and use has changed significantly over the years. Regulators have been concerned about their own ability to get a good feel for the size and risks of the overall derivative market. They have also been aware that investors may not fully understand what they are invested in, most particularly, the potential risks that are associated with derivative products. With the events of the Global Financial Crisis (GFC) highlighting the uses and risks associated with derivatives, there has been a global initiative, through the G20, for better reporting of over-the-counter (OTC) derivative use.

In Australia, it is particularly important that investors understand the nature of the products in which they invest. The number of people making their own decisions about their finances has increased dramatically, with the introduction of compulsory superannuation and the ability of individuals to choose their own superannuation investments. And of course, outside superannuation, Australians also invest money through a wide range of financial products.

The Australian regulators are ensuring that the fiduciaries: responsible entities, trustees and superannuation trustees, provide investors with information about the use of financial derivatives within financial products. As a result, the Australian Securities and Investments Commission (ASIC) are introducing new mandatory reporting of the use of derivatives within managed investment schemes and superannuation trusts.

From 13 April 2015, AFSL holders, including certain superannuation fund trustees and responsible entities of managed investment schemes will be required to report, for the first time, credit and interest rate OTC derivatives. The threshold for reporting will initially cover who holds gross notional outstanding positions in excess of \$5 billion. Other AFSL holders who hold gross notional outstanding positions below \$5 billion will be required to commence reporting later, in October 2015. Reporting on equity, credit and commodity derivatives will also be rolled out in October 2015. Like other fund managers, Ardea will be complying with the new reporting regulations, and see the benefit for investors of better understanding how their money is invested.

Regulators have been grappling with the best way to present derivatives exposures in a way which is simple and transparent. Below we explain the approach which has been adopted by the regulators and discuss some of the compromises which must inevitably be made to achieve a simple outcome.



The Australian Securities and Investments Commission (ASIC) are introducing new mandatory reporting of the use of derivatives within managed investment schemes and superannuation trusts.

Measuring and reporting the size and exposures created by derivative positions has challenged both participants and regulators since the first derivatives began to be traded. That challenge has increased with the evolution of derivatives. Originally derivatives were simple products where the equivalent physical position was easy to calculate and conceptualise, such as a futures contract over a physical bond traded in the market. Now, however, it is common to see highly complex over-the-counter arrangements with no direct physical equivalent.

To complicate matters further, some participants (not including Ardea) have used derivatives as a means to leverage their portfolios. This means that derivatives are used to effectively create a liability or borrowing within the portfolio. The impact of this practice is that there are less assets supporting the borrowing in the portfolio and, of course, more risk for the end investor.

This development has made the process of presenting the exposures created by a portfolio of derivative positions more challenging. This is particularly problematic for regulators, who are aiming for a 'one size fits all', transparent, and simple to understand framework which can be applied across financial markets.

To get a handle on the total derivative exposure, the simplest approach is to take the size of the equivalent physical positions represented by the derivative contract and, ignoring whether they are assets or liabilities, sum the dollar value of these positions together. This is illustrated by the table in Figure 10.

Under the simplest approach, the total derivative exposure is presented as \$160m, the sum of the two underlying physical positions. This is called the gross position.

However, this is clearly an overestimation of the market risk which is present in the position, as the interest rate risk liability of the futures is more than offset by the asset position of the interest rate swap.

There is some argument that the net position would be an appropriate base measurement of the derivative exposure but this fails to give a sense of the volume of trading being done. For example, our simple portfolio above would be reported as having the same exposure as a portfolio which contained billions of dollars of equivalent contracts, where the sums of the many long and short positions were different by only \$40 million.

Figure 10 – Example of Gross and Net Derivatives Exposures

	Asset	Liability
Long interest rate swap with 10-year maturity	\$100mn	–
Short 10-year bond futures	–	\$60mn
Exposure totals		
Net exposure	\$40mn	–
Gross exposure (absolute) is \$160mn		

Regulators, quite reasonably, regard the use of net exposure as unacceptable. And events which unfolded through the GFC support this view. Consider a hedge fund manager which specialises in derivative trading across markets where the same market risk can be hedged by a variety of derivative products. The portfolio created by these managers may have a large amount of so-called 'basis risk.' This risk is defined as the risk that the prices of offsetting positions will not experience price changes in entirely opposite directions from each other.

This imperfect correlation between the two investments creates the potential for excess gains or losses in a hedging strategy, thus adding risk to the position. For example, in the attempt to hedge against a swap position with the purchase of futures, there is a risk that the prices of the swap and the futures will not fluctuate identically. The larger the gross position, the more basis risk created.

The degree of risk created by large gross positions has been apparent in recent years with a number of banks reporting large losses on so-called unauthorised trades. These include a EUR4.9 billion loss on equity index futures trades totaling EUR49.9 billion at Societe Generale in 2008, which in part involved arbitraging the basis between cash equities and index futures. Another example is Morgan Stanley, which in the same year recorded a loss of USD9 billion on around USD16 billion of credit default swaps used to hedge subprime mortgages.

Given this recent history, the new regulatory reporting regime requires the reporting of derivative positions on a gross basis. This helps the regulator understand the volume of derivatives trading. The choice of gross position as the measurement for risk may also reflect a carry-over of historical concerns around the counterparty risk created by a large portfolio of derivative positions. The use of the gross exposure approach tackles the risk that the various counterparties to the transactions fail to make good on their financial obligations under the contract.

Historically, this counterparty risk was very real as there was uncertainty whether all derivative contracts could be enforced. However, over the years, the legal systems in developed financial market economies moved quickly to enact legislation to recognise the principle of netting and set-off in any bankruptcy or winding up situation. Participants in financial markets have taken further steps to protect the market by putting

in place mutually binding contractual agreements that govern the use and management of derivatives. These agreements have been standardised at the international level and are managed by the **International Swaps and Derivatives Association (ISDA)**. The use of standardised international agreements has all but eliminated the potential need to bring a court action in order to enforce obligations in a derivatives transaction, as the principles and rights of each party are governed clearly by contract.

While the regulator needs a simple, high level approach to measuring and reporting derivative exposures, using gross measures alone would be inadequate for a sophisticated market participant using derivatives as part of their portfolio management toolkit. Ardea has a comprehensive approach to measuring derivatives exposures, which takes into account all of the different characteristics of a derivative that influence the exposure it generates in the portfolio: the notional size, the term to maturity, the various interest rates used, and, of course, the counterparty. Ardea's approach to managing derivatives risk is transparent and comprehensive, and operates as an extension to the high-level gross reporting performed for the regulator. Ardea also maintains a full and complete Derivatives Risk Policy.



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Summary 

Lower risk, higher return

With a greater understanding of and focus on risk, investors are looking for ways in which they can protect their capital, while at the same time ensure their money earns a reasonable return.

Fixed income, and more specifically inflation linked bonds, are well known for their defensive characteristics and are likely, in most cases, to protect underlying capital value. To ensure that funds allocated to this lower risk asset class are working to deliver the best return possible, portfolios must be managed to take best advantage of any unique characteristics of the broadest opportunity set within the underlying market. Derivatives allow the anomalies within the market to be properly managed, both in terms of risk mitigation, and unlocking relatively low risk opportunities to earn additional return. This ensures that money invested in a fixed interest portfolio is delivering an appropriate return per unit of risk.

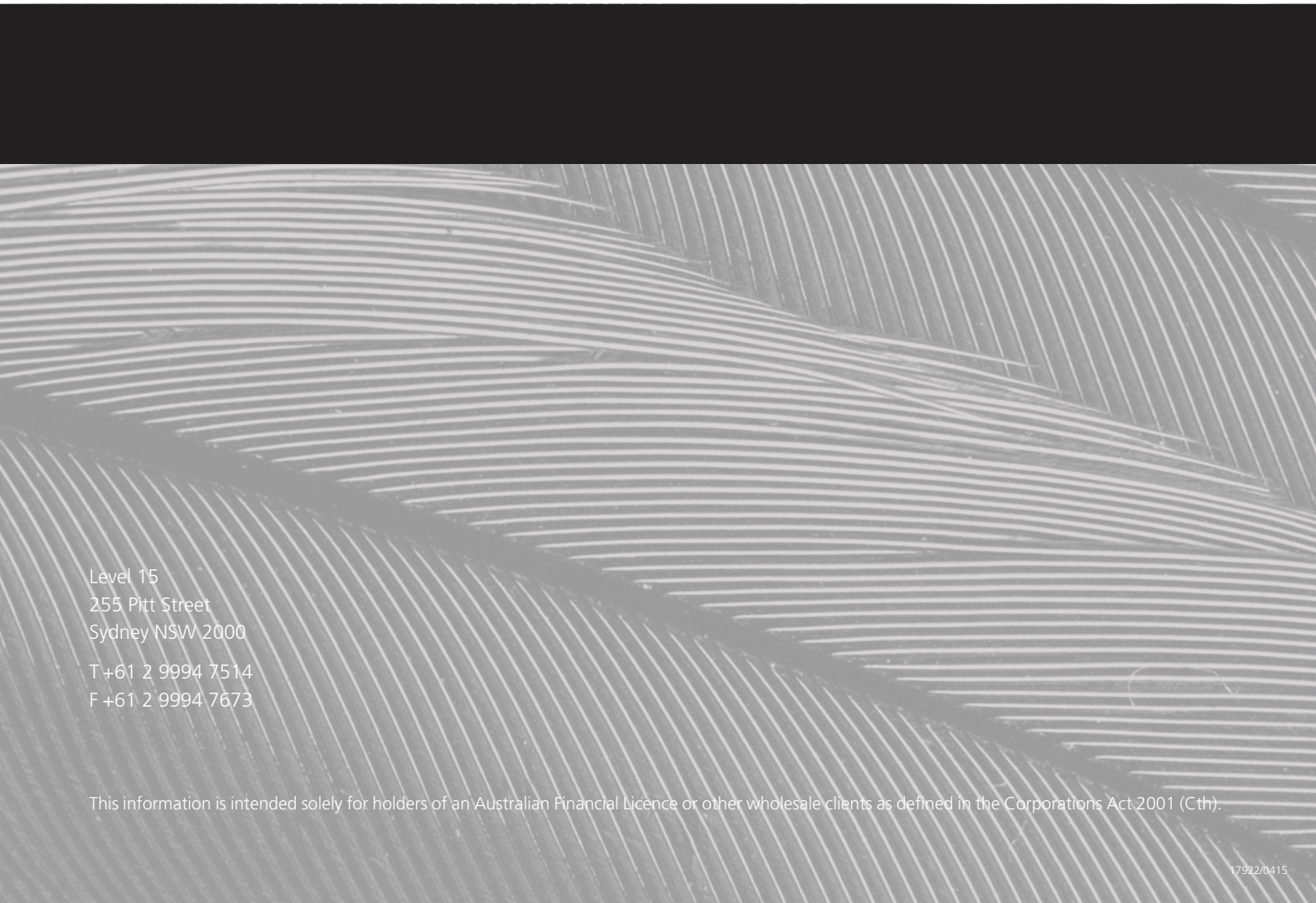
Ardea is uniquely placed to deliver lower risk, higher return enhanced defensive portfolios through a thorough understanding of the idiosyncrasies of the inflation-linked bond market, deep and insightful views on the broader fixed income universe, and technical expertise around the derivatives that support the market.



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Notes

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Level 15
255 Pitt Street
Sydney NSW 2000

T+61 2 9994 7514
F +61 2 9994 7673

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