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CALAMOS INVESTMENTS

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Enhancing LDI Strategies with Convertibles

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As pension trustees seek to reduce funding volatility and risk, interest in liability driven investment (LDI) strategies has increased. KPMG recently reported that the LDI market now exceeds £0.5 trillion in the United Kingdom alone.*

LDI strategies match assets with liabilities, considering both the duration of liabilities as well as the factors most likely to exert the greatest influence on liabilities over the long term—interest rates and inflation. Over recent years, globally accommodative policy and a benign interest rate environment have provided a more stable framework for managing liabilities, notwithstanding the challenges emanating from the periphery economies in the depth of the euro zone crisis. However, amid growing expectations that the U.S. Federal Reserve and Bank of England will embark upon interest rate increases beginning in 2015, pension scheme trustees have found good cause to revisit their portfolios to ensure prudent positioning.

For more than 30 years, Calamos has utilised convertible securities within a range of mandates. Today, we are one of the largest convertible asset managers in the world, providing our expertise to a global base of institutional clients. Based on our extensive experience, we believe convertibles—either as a stand-alone allocation or blended with equities—can benefit an LDI strategy. As equity-sensitive securities, convertibles provide the opportunity for upside equity market capture with resilience to rising interest rates, whilst their fixed income characteristics (coupon income, bond floor) may mitigate equity downside. Moreover, the liquidity of convertible securities may offset the illiquidity associated with other investments within a pension scheme, such as real estate or private equity investments.

*Source: KPMG, "Navigating the UK LDI Market", 16 June 2014.

^The strategy data has been updated through the most recent quarter.

I. ESTABLISHING AN LDI STRATEGY

Most often, an LDI strategy involves using the swap market to hedge the interest rate and inflation risk of the pension liability stream. Once the swap is in place, the remaining assets in the pension scheme are split into two pools:

1. Cash or gilts, to:

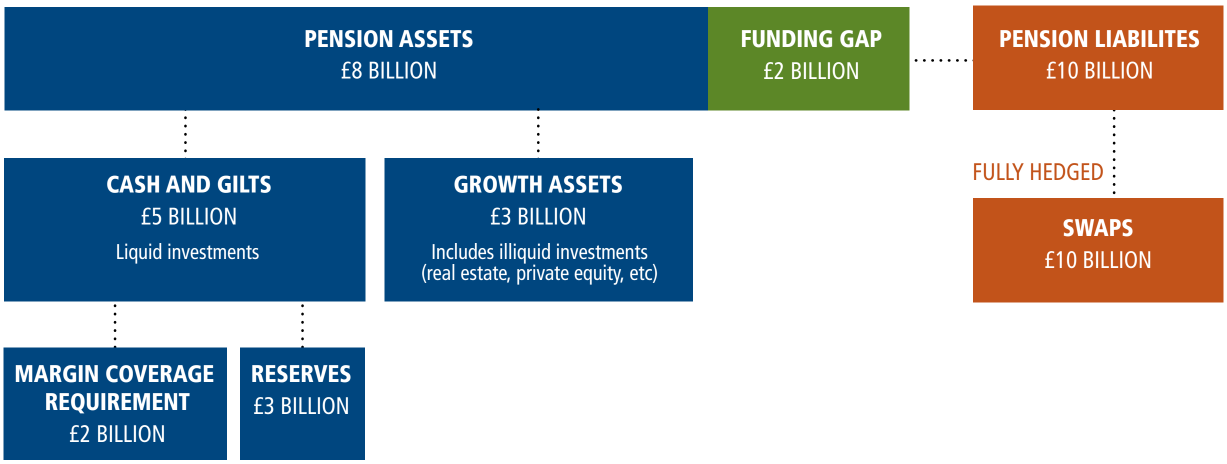
   a. **Address the margin requirements associated with the swap portfolio.** Similar to futures, the swaps do not require a cash outlay but one does need collateral to support the trade.

   b. **Serve as a reserve to address increased margin requirements that may occur over time, for example, as interest rates rise over a period of years.** Typically, pension trustees and their advisors determine a level of liquid securities that would be sufficient to back the swaps exposure in just about every scenario. Still, history has demonstrated that even the most thorough preparations may not address everything the market has in store. For example, in the late 1970s and early 1980s, interest rates moved up markedly in the U.S., although not overnight, whilst in 1994, a significant interest rate squeeze occurred much more rapidly.

2. Long-term growth assets, to reduce any funding gaps as well as potentially reduce future contributions to the scheme. Because of both the long-dated nature of the plan and the presence of the swap portfolio and the cash allocation, pension trustees are typically comfortable investing the growth portfolio in less liquid strategies (such as hedge funds, private equity and infrastructure) and collecting the embedded illiquidity premium inherent in those strategies.

FIGURE 1. LDI PORTFOLIO OVERVIEW

The following illustrates the hypothetical capital structure for a fully hedged, 80% funded pension scheme with £8 billion in assets and £10 billion in liabilities. To hedge the liabilities, the scheme purchases £10 billion of swaps, requiring £5 billion of cash or gilts as collateral. This would leave £3 billion as return-seeking assets to close a 20% funding gap.



II. UNDERSTANDING THE TRADE-OFFS IN AN LDI STRATEGY

One of the inherent challenges in managing an LDI strategy is the trade-off between the cash bucket and the growth bucket. A pension can fully hedge its liabilities but at the risk of leaving insufficient assets to invest for growth, which may be particularly unappealing for a scheme that is already challenged by a funding gap, such as the hypothetical scheme outlined in Figure 1. Alternatively, trustees may opt to partially hedge the scheme's liabilities and keep a sizeable portion of assets in the growth pool. Whilst the desire to maximise the growth bucket is understandable, the risk of having too little cash to support the swap book is not insignificant. Even though swaps are marked to market on a daily basis, small moves over time may still have a significant impact. This risk is magnified if the bulk of the growth assets are in less liquid strategies.

This is because the assets and liabilities of the pension scheme are matched economically, but not from a cash flow basis. If rates increase, the loss on the swaps matches the gain on the scheme's liabilities from an economic perspective (assuming a perfect hedge). But the loss on the swaps requires additional margin, whilst the fall in its liabilities is a non-cash item. Liabilities have gone down, because rates have gone up. But the book of swaps has generated an equal loss, requiring the plan to post more collateral roughly equal to the amount the liabilities decreased.

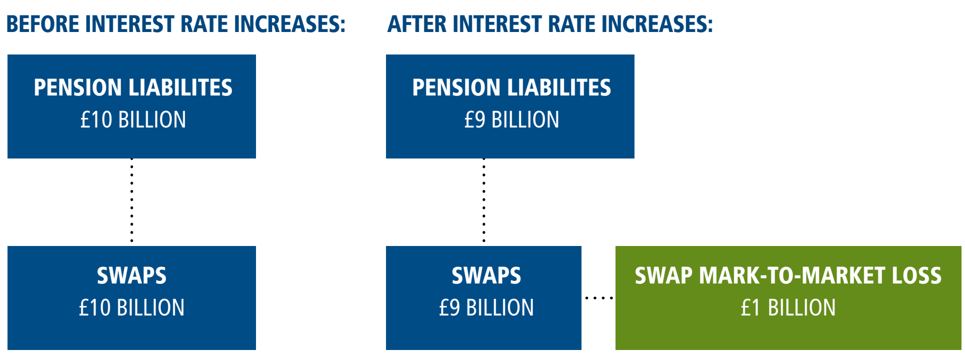
Although this scenario may seem highly improbable in the current environment, it is not impossible, as conditions in the U.S. in the 1970s and 1980s and in 1994 demonstrate. If inflation picked up, and central banks were perceived as being behind the curve, government bond rates could skyrocket. And the margin call on the swaps outlined previously would be all too real.

The risk-mitigation characteristics of convertibles can be captured through:

1. Dedicated convertible allocations
2. Portfolios that combine convertibles and equities

FIGURE 2. LDI PORTFOLIO MAY COME UNDER PRESSURE WHEN RATES RISE

Returning to our example in Figure 1, let us suppose that rates have moved higher, either rapidly or more slowly over time. Higher interest rates result in reduced liabilities, but the pension scheme must find an additional £1 billion to cover the mark-to-market losses in the swap portfolio, whilst also still grappling with the funding gap.



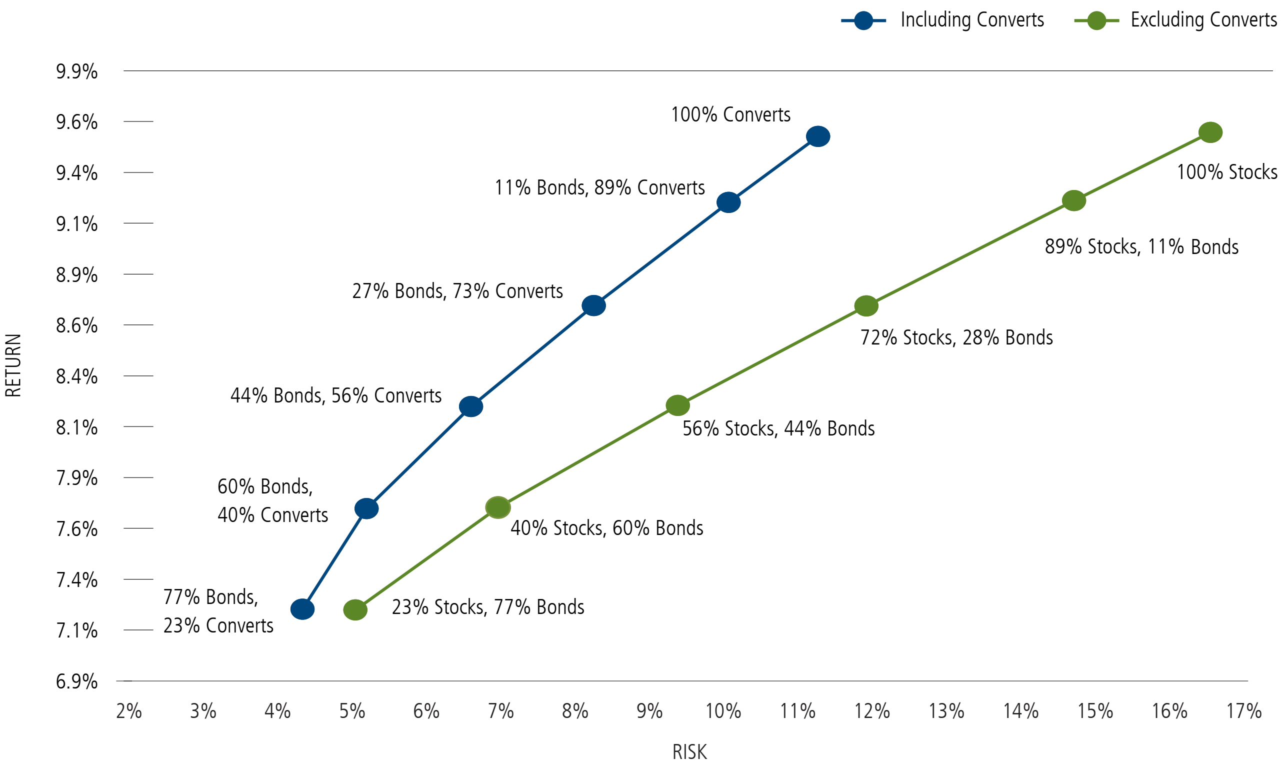
III. ADDRESSING THE LDI TRADE-OFFS WITH CONVERTIBLES

Adding convertibles to the growth pool (as either a stand-alone allocation or combined with equities) may make trustees more comfortable with a larger growth allocation, even—and perhaps especially—when equity markets are volatile. Convertible securities offer downside protection and short duration, providing a counter to the long-duration and illiquid assets that are the typical mainstays of the growth pool.

Because convertibles have an embedded option, they typically have an asymmetric return profile. In other words, the holder of a convertible typically participates in a higher share of the underlying equity's upside than in its downside. As shown in Figure 3, this asymmetric return profile has allowed convertibles to add value at lower risk within a multi-asset portfolio.

FIGURE 3. CONVERTIBLES HAVE ENHANCED MULTI-ASSET PORTFOLIOS

Hypothetical Illustration
Efficient Frontier: U.S. Stocks, Bonds and Convertibles



Past performance is no guarantee of future results.
The data shown is for illustrative purposes only and is not intended to represent or predict the performance of any investment. The risk and returns shown for convertibles, stocks and bonds are represented by the standard deviation and the annualised returns from December 1989 to December 2014 for the BofA ML All Traditional Convertibles Index (V0A0), S&P 500 Index and the BofA ML Corporate & Government Master Index, respectively. Indexes are unmanaged, do not entail fees or expenses and are not available for direct investment. Source: BofA Merrill Lynch Convertibles Research.

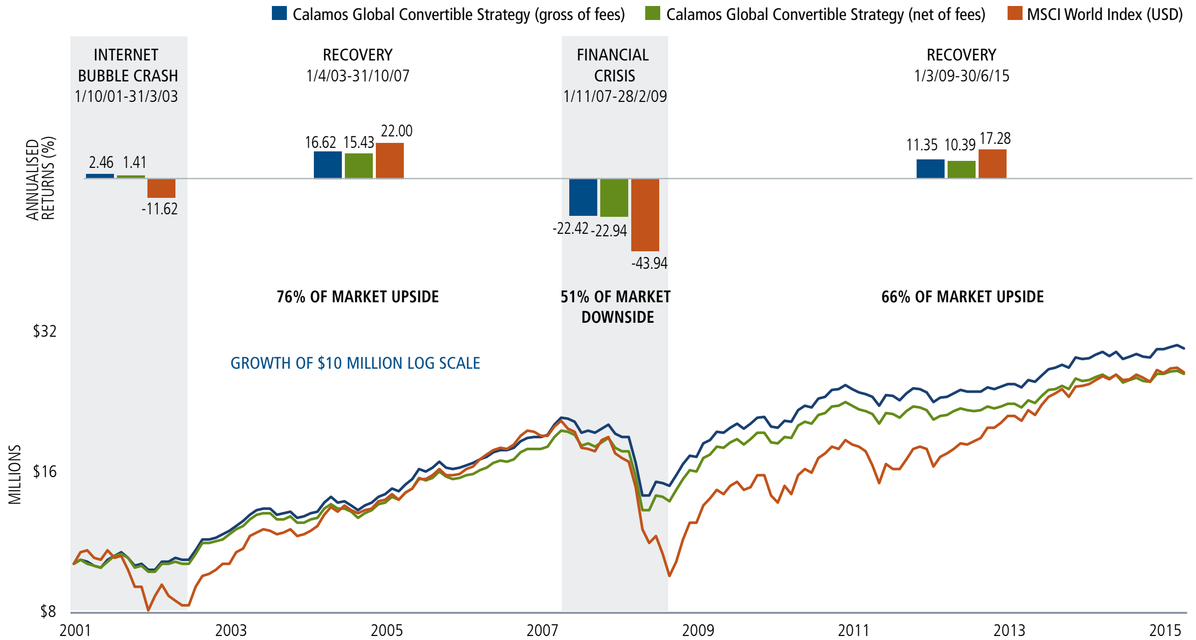
IV. CALAMOS PERFORMANCE

When actively managed, convertibles may provide equity-like returns with significantly less volatility over full market cycles. Over the decades, we have generated such risk/return profiles within both U.S. and global mandates, as shown on the following pages. Figures 4a and 4b illustrate the performance of our global and U.S. convertible strategies, respectively. Figure 4c illustrates the performance of our Global Opportunities Strategy, which combines convertibles and equities in support of its lower-volatility equity approach.

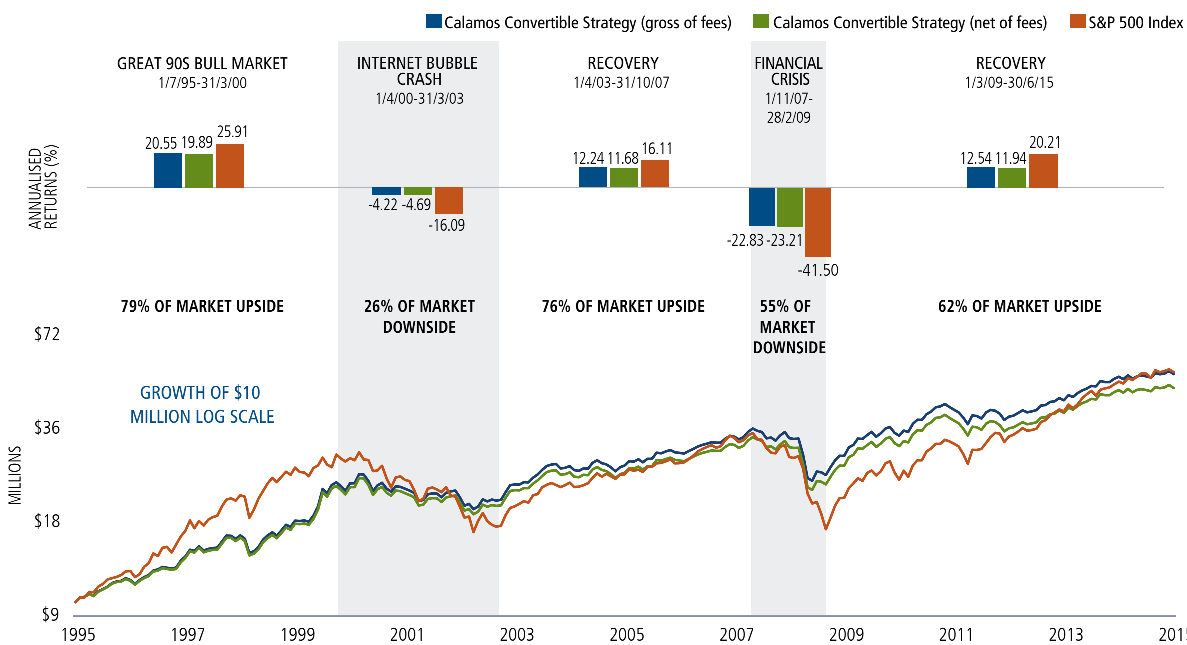
FIGURE 4. CALAMOS HAS USED CONVERTIBLES TO MANAGE RISK OVER MULTIPLE CYCLES

DATA THROUGH 30 JUNE 2015

4a. Calamos Global Convertible Strategy Versus the MSCI World Index

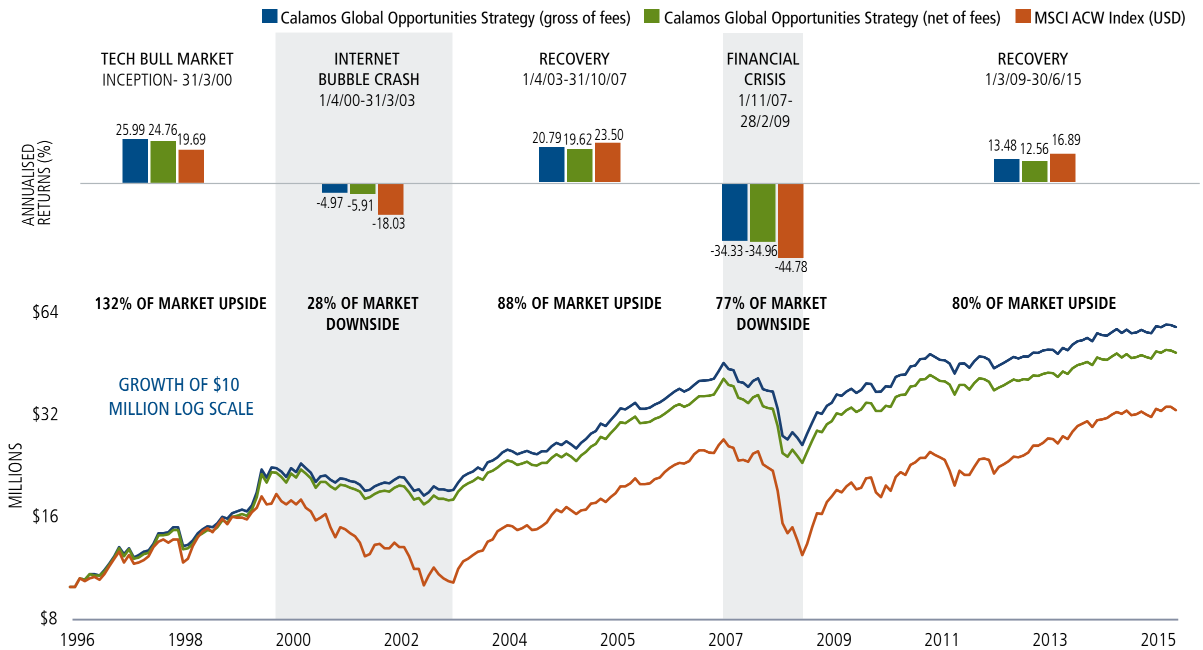


4b. Calamos Convertible Strategy (U.S. Focused) Versus the S&P 500 Index



Figures 4a, 4b, 4c: **Past performance is no guarantee of future results.** Current performance may be lower or higher than the performance quoted. The principal value and return of an investment will fluctuate so that your shares, when redeemed, may be worth more or less than their original cost. For the most recent strategy performance information visit www.calamos.com. For the Calamos Global Convertible Strategy, the Calamos Convertible Strategy and the Calamos Global Opportunities Strategy, index data shown is from 1/10/01, 1/7/95 and 1/10/96, respectively, since comparative index data is available only for full monthly periods. Logarithmic scales can be useful when looking at performance data over a long period of time. Common percent changes are represented by an equal spacing between the numbers in the scale. For example, the distance between $1 and $2 is equal to the distance between $2 and $4 because both scenarios represent a 100% increase in price. Source: Mellon Analytical Solutions LLC.

4c. Calamos Global Opportunities Strategy Versus MSCI All Country World Index



The defensive equity characteristics of convertibles provide the added benefit of making it easier to stay invested during the volatile bear phase of the market cycle. As we like to say at Calamos, it's not about timing the market, it's about your time in the market. And the volatility-dampening nature of convertibles makes it less problematic to stay invested.

Moreover, convertibles can provide a safety net for the cash and gilts backing the swap book. Within a liquid and defensive growth strategy, convertibles provide an extra line of defense for a plan's swap exposure. Although convertibles do not have the liquidity of the cash and short-term government bonds that are the nest egg of any LDI strategy, they are more than liquid enough to work as a safety net in tandem with the cash and gilt allocation.

V. CONCLUSION

In summary, we at Calamos believe that the volatility-dampening characteristics of convertibles make for an innovative way for LDI-based pension schemes to have it both ways—investing for growth for the long-term, while keeping some extra funds in a liquid strategy to address the unpredictable nature of the markets. In our experience, the benefits of convertibles can be effectively harnessed through a dedicated convertible portfolio or through a strategy that combines convertibles with equities.

ABOUT THE AUTHOR

Eli Pars, CFA, is a senior vice president and senior co-portfolio manager, with specialisations in global convertibles and convertible arbitrage. He has 28 years of industry experience. Prior to returning to Calamos in 2013, Mr. Pars was a portfolio manager at Chicago Fundamental Investment Partners, where he co-managed a convertible arbitrage portfolio. Previously, he held senior roles at Mulligan Partners LLC, Ritchie Capital and SAM Investments/ The Hampshire Company. Earlier in his career, Mr. Pars was a vice president and assistant portfolio manager at Calamos. Mr. Pars received a B.A. in English Literature from the University of Illinois and an M.B.A. with a specialisation in Finance from the University of Chicago Graduate School of Business.

Additional Information: Annualized Total Returns (As of 30 June 2015)

	1-YEAR	3-YEAR	5-YEAR	10-YEAR	15-YEAR	SINCE V0A0 INCEPTION (1/88)	SINCE STRATEGY INCEPTION (1/79)
Calamos Instl Convertible Composite (gross of fees)	2.04%	11.14%	9.60%	7.03%	5.55%	9.75%	11.10%
Calamos Instl Convertible Composite (net of fees)	1.45	10.47	8.99	6.48	5.01	9.12	10.36
BofA ML V0A0 Index	3.37	14.90	12.86	8.21	5.71	9.75	N/A
S&P 500 Index	7.42	17.31	17.34	7.89	4.36	10.47	11.61

	1-YEAR	3-YEAR	5-YEAR	10-YEAR	SINCE INCEPTION (10/01)
Calamos Global Convertible Composite (gross of fees)	1.74%	8.48%	8.18%	7.95%	8.21%
Calamos Global Convertible Composite (net of fees)	0.20	7.22	7.15	7.00	7.22
BofA ML Global 300 Convertible Index (USD)	1.41	10.22	9.11	7.13	6.97
MSCI World Index (USD)	1.97	14.90	13.72	6.96	7.29

	1-YEAR	3-YEAR	5-YEAR	10-YEAR	15-YEAR	SINCE INCEPTION (10/96)
Calamos Global Opportunities Composite (gross of fees)	1.31%	9.03%	9.15%	7.90%	6.61%	9.87%
Calamos Global Opportunities Composite (net of fees)	0.56	8.20	8.28	6.96	5.64	8.85
MSCI All Country World Index (USD)	1.23	13.61	12.52	6.97	4.15	6.61

Past performance is no guarantee of future results. The results portrayed on the preceding pages are for the Calamos Global Convertible Composite, the Calamos Institutional Convertible Composite and the Calamos Global Opportunities Composite. Representative holdings and portfolio characteristics are specific only to the portfolio shown at that point in time. Other portfolios will vary in composition, characteristics, and will experience different investment results. The representative portfolio shown has been selected by the advisor based on account characteristics that the advisor feels accurately represents the investment strategy as a whole.

Calamos Global Convertible Composite: The Calamos Global Convertible Composite is an actively managed composite investing primarily in a globally diversified portfolio of convertible securities. The composite includes all fully discretionary fee-paying accounts, including those no longer with the Firm. Accounts valued at less than $1,000,000 are not included. All returns are net of commission and other similar fees charged on securities transactions and include reinvestment of net realised gains and interest.

Calamos Institutional Convertible Composite: Returns presented from 1 January 1991 through the current period are based on the Calamos Institutional Convertible Composite. This is an actively managed composite investing primarily in high-quality U.S. convertible bonds, which is comprised of fully discretionary, fee-paying, tax-exempt accounts of $1,000,000 or more, managed by Calamos Asset Management, Inc. Returns presented from 1 October 1979 through 31 December 1990 reflect the Calamos Convertible Composite. This is an actively managed composite investing in higher-quality foreign and U.S. convertible bonds, which is comprised of fully discretionary, tax-exempt, fee-paying accounts of $250,000 or more managed by Calamos Asset Management, Inc. All returns are net of commission and other similar fees charged on securities transactions and include reinvestment of net realised gains and interest.

Calamos Global Opportunities Composite: Returns reflect the Calamos Global Opportunities Composite, which is an actively managed composite primarily investing in a globally diversified portfolio of equity, convertible and fixed-income securities, with equal emphasis on capital appreciation and current income. The composite includes all fully discretionary fee-paying accounts, including those no longer with the firm. Accounts valued at less than $500,000 are not included. All returns are net of commission and other similar fees charged on securities transactions and include reinvestment of net realised gains and interest.

Fees include the investment advisory fee charge by Calamos Advisors LLC. Returns greater than 12 months are annualised. Chart Data Sources: Mellon Analytical Solutions LLC and Calamos Advisors LLC.

The S&P 500 Index is a measure of the performance of the U.S. equity market. The Bank of America Merrill Lynch All US Convertibles Ex Mandatory Index (V0A0) is broadly representative of the U.S. convertible securities market, consisting of publicly traded issues, denominated in U.S. dollars, of all credit qualities, and excluding mandatory (equity-linked) convertibles. The Bank of America Merrill Lynch Global 300 Convertible Index (VG00) is a global convertible index composed of companies representative of the market structure of countries in North America, Europe and the Asia/Pacific region. The MSCI World Index is a market capitalization weighted index composed of companies representative of the market structure of developed market countries in North America, Europe, and the Asia/Pacific region. The MSCI All Country World Index is a benchmark for global equity market performance. Indexes are unmanaged, do not include fees or expenses and are not available for direct investment.

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