White Paper **Fixed Income** 

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# A Look Under the Convertible Bond Bonnet

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# Introducing Convertible Bonds

Convertible bonds offer investors a unique exposure, as they combine features of both debt and equity. They are a bond allowing investors to participate in equity markets upside. And an equity with a protection to the downside.

But how do they work, when would they appeal to investors, and what are the risks? In this paper, we dive under the convertible bonnet and explore their history, structure, and use cases.

Convertibles have become an investable global asset class worth circa \$350B across 500 bonds.<sup>1</sup> Issuers range from medium-sized companies to large international corporations in developed and emerging economies. Their unique profile makes them a valuable tool to diversify portfolios, and to deliver a more convex profile.

Convertible bonds started as a tool to finance capital-intensive projects such as canals and railroads in the UK and US. Dutch issuers tapped this innovative financial instrument in the second half of the 19<sup>th</sup> century, notably to fund water companies. Throughout their history, their structure has allowed issuers to borrow at lower rates in exchange for allowing the investor to participate in the company's growth via an option to convert the bond into newly issued shares at a given price.

#### What Are Convertible Bonds?

Convertible bonds are debt securities that combine features of both debt and equity. Like a traditional corporate bond, convertible bonds can pay a fixed, periodic coupon and mature on a specific date. They also share some of the risks of normal corporate bonds, such as credit risk in relation to the issuer, and interest rate risk in the event of interest rate changes.

They differ from conventional corporate bonds because convertible bonds contain an embedded option which gives the holder the ability, but rarely the obligation, to convert their bond into a predetermined number of shares of an underlying company. This company is usually the same company as the one issuing the bond, thought it does not have to be.

The number and type of shares of the underlying company are set out in the bond's offering documents at issuance. This allows the holder to monitor the value of the bond in comparison to the value of the shares they would receive if they convert. They may choose to do so if the shares become worth more than the bond itself.

This conversion feature means the value of a convertible bond rises if the underlying stock price rises, giving the convertible bond the possibility of rising with equity markets. At the same time, the steady stream of coupons provides a degree of downside protection — sometimes known as a 'bond floor' — if the issuer's stock declines.

#### **How Do They Work?**

A convertible bond can go through three phases during its lifecycle, depending on how the price of the underlying stock evolves: bond-like, balanced or hybrid, or equity-like (see Figure 1).

When the share price is low (relative to the conversion price), the option embedded in the convertible bond is referred to as "out of the money" and the bond behaves similarly to a conventional corporate bond. In this area of valuation, the bond is more sensitive to changes in the interest rate and the credit risk premium.

In the hybrid section of the illustration, the convertible bond is referred to as "at the money". This phase is often regarded as the most interesting for investors since it can provide both a fair degree of participation when the share price increases and low participation when it falls. The ratio of upside potential to downside protection is at its highest, and this is where the asymmetric risk/return profile characteristic of convertible bonds is most prominent. This feature is known as the convertible bond's convexity and is measured in terms of gamma.

When the share price exceeds the strike price, the convertible bond is said to be "in the money" and is in its equity-like phase.

This phase is shown in the right-hand section of Figure 1 below, where the value of the convertible bond is close to parity (with a low conversion premium) and behaves almost like the underlying share.

Market participants distinguish between convertible bonds from companies with relatively strong credit ratings, which tend to be protected on the downside by the bond floor, and ones from distressed issuers, where a high probability of default may exist. This is depicted on the left-hand side of the graph in Figure 1 when the value of the convertible falls towards zero.

#### Figure 1 Risk Profile of a Convertible Bond

Convertible Price

Value of Equity

Bond Floor

#### 1 Bond-like

Price of Shares

- < Conversion Price
- Convertibles trade like a bond
- Bond acts as a floor to the investment
- No equity sensitivity

#### 2 Hybrid

Price of Shares = Conversion Price

- Convertibles behave like a hybrid of equity and bond
- This is the most risky position as it is most sensitive to changes in price

Convertibles trade like equityEquity sensitivity is the highest

Price of Shares

> Conversion Price

**3 Equity-like** 



The information contained above is for illustrative purposes only.

# Biases in the Convertible Bonds Universe

Size Bias	Global convertible bond indices can create biases compared to their global equity and global bond equivalents. Investors should be aware of the biases, which can be drivers of outperformance. Since convertible bonds appeal to issuers as a tool to finance growth companies, there tends to be a bias toward small- and mid-cap companies. Convertibles are often a first step into using capital markets as a source of debt financing in advance of credit ratings and longer-term funding.
	The use of convertible bonds as a financing tool is also limited compared with equities and bonds. The market cap of the MSCI ACWI IMI Index is around \$82.8T, <sup>2</sup> and \$14.6T <sup>3</sup> for the corporate bond universe of the Bloomberg Multiverse Index, which includes both investment grade and high yield rated bonds. The circa \$350B market cap of the FTSE Global Convertible Bond Index is quite small in comparison, but the characteristics are attractive for both fixed income portfolios, as an enhancer of returns, or equity portfolios, as a diversifier and for drawdown management.
Growth and Sector Biases	The global convertible bond universe has a sector bias compared with global equity and corporate bond indices (see Figure 2).
	Convertible bonds also tend to exhibit a growth bias compared with broad equity and bond indices because issuance is skewed towards growth areas like technology and communications service companies. Consumer sectors are also well represented, notably consumer discretionary, with its internet retail bias.

 MSCI ACWI
 Bloomberg Global High Yield Corporate Index

Bloomberg Global Corporate Index

Figure 2

FTSE Qualified Global Convertible Bond Index



Source: State Street Global Advisors, Bloomberg Finance, L.P., as of 31 December 2024. Sectors are as of the date indicated, are subject to change, and should not be relied upon as current thereafter. This information should not be considered a recommendation to invest in a particular sector or to buy or sell any security shown. It is not known whether the sectors or securities shown will be profitable in the future.

#### Market Cap Biases: Increasing Tilt towards Mid and Small Cap

Figure 3 FTSE Qualified Global Convertible Bond Underlying Equity Market Cap Bias (Year End)



- Small Cap
- 📃 Unavailable Data

Over the past five years, former high growth startups (like Tesla) have left the universe, leaving space for more small- and mid-cap issuers, notably in the US, which represent over 50% of the global convertible universe.



Source: State Street Global Advisors, Bloomberg Finance, L.P., as of 31 December 2024.

# Under the Bonnet of Credit Quality

The convertible bond universe contains a fair portion of non-rated bonds, as highlighted in Figure 4. Trying to approximate an overall portfolio or index rating using individual credit of bonds is challenging. Nevertheless, the credit spread of the index can help guide what type of credit risk the market assigns to the universe. Note that the credit spread is a function of the credit risk and the equity option when it comes to evaluating the FTSE Qualified Global Convertible Bond Index.

#### Figure 4

#### Option Adjusted Spread (bps) — FTSE Qualified Global Convertible Bond Index

- BAML Global Broad Corp BBB (GBC4)
- BAML Global HY BB (HW10)
- BAML Global HY (HW00)
- FTSE Qualified Global Convertible Index



Source: FTSE, Bloomberg Finance, L.P., as of 31 December 2024. The BBB and BB rating of the BAML indices refer to the average rating defined by the index. It is taking the average rating of the 3 main rating agencies (S&P, Moody's and Fitch). The Refinitiv Qualified Global Convertible Index was incepted on 11 December 2008. Results prior to this date were calculated by using available data at the time in accordance with the Index's current methodology. Refinitiv Qualified Global Convertible Bond Index includes back-tested returns supplied by Refinitiv. Effective 1 January 2020, the index name was changed from Thomson Reuters Qualified Global Convertible Index to Refinitiv Qualified Global Convertible Index. Effective 1 December 2024, the index name was changed to FTSE Qualified Global Convertible Index.

Issuers of convertibles range across the spectrum of credit quality: from investment grade to non-investment grade and non-rated. For those companies that issue convertibles but are below investment grade, many find that an equity option is beneficial to attracting capital without needing to pay prohibitively high interest rates with a standard bond issuance. Another feature of issuance within the convertible bond market universe is that a large proportion of the market is unrated. Amongst the most pertinent reasons for this are lack of ratings programs and geography. Many companies that issue convertible bonds come from a background where they are more used to raising capital through equity than bonds (think of sectors like IT or entertainment with reasonable growth prospects). Setting up a bond rating program is expensive and time consuming. It may not be worth the time and expense for these sorts of companies. Certain geographies are less inclined to rate their bonds than others.

A large proportion of Asian corporate issuers, for example, will choose not to rate their bonds even if they are regular participants in capital market debt issuance. In order to help investors ascertain the potential credit quality of issuers, asset managers use their own credit analysis or use independent providers. State Street has been using such a tool and an indicative quality breakdown is displayed on factsheets monthly and our website daily.

### Convertible Bond Performance

Convertible bonds have been compared to a plane with multiple engines. Even if not all engines are working at the same time, the journey will be completed. In the same way, the hybrid nature of convertibles allows navigation across multiple market environments.

The ideal environment for convertible bonds is typically when rates are falling and equity markets rally, carrying with them a tightening of credit spreads. In these conditions, the bond gains value in a low interest-rate environment, and equity prices increase, raising the value of the conversion option. Both drive the likelihood of the convertible bond increasing in value.

If investors feel that the credit cycle may be about to turn, it is worth pointing out that convertible bonds have less credit risk than equities and tend to rank equally with common unsecured corporate bonds.

#### Movement of Equity Markets

#### Low Interest Rates & High Equity Market

- Most favourable position
- Low interest rates = bond gains value
- Share price increases = conversion option gains value
- · Price of the convertible bond increases

#### Low Interest Rates & Low Equity Market

- Observed during financial crisis
- Low interest rates = bond gains value but could be at risk of default
- Share price decreases = conversion option loses value
- Higher debt sensitivity of convertible bonds which acts as a floor to the investment

#### **Higher Interest Rates & High Equity Market**

- Observed during economic recovery
- High interest rates = bond loses value
- Share price increases = conversion option gains more value than loss of bond value
- Higher equity sensitivity of convertible bonds

#### **Higher Interest Rates & Low Equity Market**

- · Least favourable situation
- High interest rates = bond loses value
- Share price decreases = conversion option loses value
- Price of convertible bond decreases

#### Interest Rates

Source: State Street Global Advisors. The above information is for illustrative purposes only.

Figure 5 **The Macro Sweet Spot for Convertible Bonds** 

#### Performance and Drawdown in Volatile Times

Figure 6

```
Convertible Bond
Index Drawdown
Relative to Equities
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- FTSE Qualified Global Convertible Bond Index
- Linear (FTSE Qualified Global Convertible Bond Index)
- MSCI ACWI NR USD Index
- Linear (MSCI ACWI NR USD Index)

As Figure 6 shows, convertible bonds have offered downside protection relative to equities and relationship delta.



Source: State Street Global Advisors, Bloomberg Finance, L.P., as of 27 December 2024. Index returns are unmanaged and do not reflect the deduction of any fees or expenses. Index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income as applicable.

One of the diversifying characteristics of convertible bonds is linked to the bond's floor. It can help limit drawdown when equity markets fall abruptly. Figure 7 highlights the drawdown of various exposures ranging from global equities to global corporate bonds, including convertibles. We can see the pattern of reducing drawdowns in market downturns is a key characteristic when comparing convertibles with equities in particular.



Source: State Street Global Advisors, as of 31 December 2024.

- FTSE Qualified Global Convt TR USD
- MSCI World Small Cap NR USD
- MSCI World NR USD
- Bloomberg Global Credit Corporate TR USD
- Bloomberg Global High Yield TR USD
- Bloomberg Global Aggregate TR USD
- MSCI ACWI NR USD

#### Further Historical Convertible Bond Performance Considerations

#### 1 Yield Advantage Over Equities

Historically, convertible bonds have provided exposure to growth-type equity profiles that were not paying dividends. For example, MicroStrategy Inc has issued various bonds from zero coupon ones to ones paying a coupon of 2.25%. These were below the yield on treasury bonds of similar maturity, but the 2032 convertible bond issued in June 2024 offers exposure to the equity and has a yield. Meanwhile MicroStrategy has not paid any dividend as of November 2024. Convertible bond issuance is also only rarely used to pay dividends so the asset can be considered sometimes as an equity exposure with a "dividend" yield.

#### 2 Market Exposure Asymmetry

Comparing the performance of convertible bonds relative to their underlying equity over the past 10 years, we can see that convertible bonds can generate similar performance — with lower volatility.

During the period from October 2024 to 31 December 2024, in USD hedged terms for comparison's sake, the cumulative performance difference is around 7.3%, while volatility was reduced by 55%. The average daily participation to the negative performance days was 34% versus 49% for positive-performance days, highlighting the real convex nature of convertible bonds.

The examples mentioned are for illustrative purposes only and should not be considered a recommendation to invest any particular sector or buy or sell any security shown. It is not known whether the securities shown will be profitable in the future.



Source: State Street Global Advisors, FTSE, as of 31 December 2024.

Figure 8 Convertible Bond Performance vs. Underlying Equity Performance Asymmetry of Equity

Performance Capture — FTSE Qualified Global Convertible Index

- (USD hedged)
- Difference FTSE Qualified Global Conv Hedged (USD) vs. FTSE Qualified Global Conv Hedged Parity (USD)
- FTSE Qualified Global Convertible Hedged Parity (USD)
- FTSE Qualified Global Convertible Hedged (USD)

#### 3 Risk Return: Diversification and Efficient Frontier Improvement

The hybrid nature of convertible bond is the root of their potential source of diversification. Unlike holding a mix of standard bonds and equities, the advantage of the option to convert into equity means investors can benefit on both sides of the exposure: they can track equity prices higher when they rally but they can be protected on the downside thanks to the bond component (see Figure 9). The higher convexity provides a floor, limiting downside risk should the bond issuer credit remain solid.



Global Agg Bonds/Global Equity vs Global Agg Bonds/ Global Convertible



Source: FTSE, Barclays, Bloomberg Finance, L.P., as of 31 December 2024. Duration shown above are subject to change. The Refinitiv Qualified Global Convertible Index was incepted on 11 December 2008. Results prior to this date were back test calculated by using available data at the time in accordance with the Index's current methodology. Refinitiv Qualified Global Convertible Bond Index includes back-tested returns supplied by Refinitiv. Effective 1 January 2020, the index name was changed from Thomson Reuters Qualified Global Convertible Index to Refinitiv Qualified Global Convertible Index. Effective 1 December 2024, the index name was changed to FTSE Qualified Global Convertible Index.

When comparing with bond and equity indices, the risk-adjusted performance often puts convertible bonds in the upper ranks using a rolling five-year return versus risk (volatility) ratio. Using that time frame, global high yield and global corporates would have been well positioned post the yield spike induced by the Global Financial Crisis (GFC), allowing investors to lock in high yield in less volatile segments of the markets. As yields start to fall or normalise, equity-tilted exposures start to offer better medium-term risk-adjusted returns. This is an important consideration when building portfolios based on economic and rate cycles.

#### Figure 10

### Relative 5-year Risk Return of Different Asset Classes

- Sharpe Ratio Ranking FTSE Qualified Global Convertible Bond Index — RHS
- Bloomberg Global Agg Corporate
- Bloomberg Global High Yield Corporate
- FTSE Qualified Global (USD)
- MSCI ACWI Net Total Return USD
- MSCI World Small Cap Net Total



Source: State Street Global Advisors, as of 31 December 2024. Performance in USD unhedged terms. Risk free rate based on the J.P. Morgan Cash Index USD 1 Month.

#### 4 Changing Maturities in Convertible Bonds Has Delivered More Stable Interest Rate Sensitivity

Over the past 20 years, the average maturity of the broad convertible bond universe has diminished significantly. This has brought down the average duration — or rate sensitivity — of the universe. However, the (equity) option-adjusted sensitivity has been more stable while remaining lower than for global bonds of similar quality. In an environment of rising interest volatility and potentially uncertain inflation dynamics, this is a noteworthy feature.

#### Figure 11 Interest Rate Sensitivity — Option Adjusted

Global Convertibles (Rho) versus Global High Yield and Investment Grade Corporate Bonds (Duration)

FTSE Qualified Global Convertible Bond Index (Rho 100bps)

Bloomberg Global Corporate Index (Duration)

Bloomberg Global High Yield Corporate Index (Duration)



Source: FTSE, Barclays, Bloomberg Finance, L.P., as of 31 December 2024. Duration shown above are subject to change. The Refinitiv Qualified Global Convertible Index was incepted on 11 December 2008. Results prior to this date were back test calculated by using available data at the time in accordance with the Index's current methodology. Refinitiv Qualified Global Convertible Bond Index includes back-tested returns supplied by Refinitiv. Effective 1 January 2020, the index name was changed from Thomson Reuters Qualified Global Convertible Index to Refinitiv Qualified Global Convertible Index. Effective 1 December 2024, the index name was changed to FTSE Qualified Global Convertible Index.



Source: FTSE, Barclays, Bloomberg Finance, L.P., as of 31 December 2024. Duration shown above are subject to change. The Refinitiv Qualified Global Convertible Index was incepted on 11 December 2008. Results prior to this date were back test calculated by using available data at the time in accordance with the Index's current methodology. Refinitiv Qualified Global Convertible Bond Index includes back-tested returns supplied by Refinitiv. Effective 1 January 2020, the index name was changed from Thomson Reuters Qualified Global Convertible Index to Refinitiv Qualified Global Convertible Index. Effective 1 December 2024, the index name was changed to FTSE Qualified Global Convertible Index.

#### Figure 12 FTSE Qualified Global Convertible Bond Index — Average Life to Maturity

#### Who Buys Convertible Bonds?

Who are the main users of convertible bonds?

- Equity funds: risk-averse equity managers who wish to hold a more defensive instrument. These investors focus on the total return segment of the convertible universe.
- Equity income funds: common stock investors who require more income than is provided by a company's common stock. Such investors tend to include pension funds and insurance companies.
- Fixed income managers seeking equity enhancement: fixed income managers looking to add alpha to their performance by sacrificing a certain amount of income to obtain some equity exposure. These investors tend to focus on the yield and/or total return segments of the convertible market.
- Dedicated outright convertible funds: investors dealing exclusively in the management of convertible security portfolios. These investors tend to be interested in the full spectrum of convertible investments.
- Arbitrageurs and hedge funds: quantitative investors looking to profit from valuation discrepancies between the convertible, underlying stock, and other securities. Hedge funds are typically market neutral investors who aim to generate returns regardless of whether the markets and securities rise or fall.
- Asset managers, pension funds, and insurance portfolios as part of their tactical or strategic asset allocation framework.
- Insurers: in an attempt to regulate insurance companies' use of capital, the Solvency II European Union's directive forces investors to focus on this matter stringently. In the meantime, the IORP directive is looking to subject pension funds to a similar approach focusing on harmonised capital adequacy principles. By exhibiting better risk-adjusted returns over the long run without sacrificing returns, convertible bonds appear to be a particularly well-adapted tool for the management of an insurance portfolio, thereby allowing insurers to make more efficient use of their capital.

#### Evolving Convertible Bond Funds

Flows in the European domiciled convertible bond funds world have been negative since central banks embarked on one of the strongest tightening regimes in decades. Since the end of 2021, as the rate cycle turned away from COVID easing, investors have rotated their fixed income allocations into direct equities and money market funds. Since the beginning of 2024, there has been a more positive turn in investor allocations. However traditional active funds continued to suffer outflows. But the outflow trend seems to be losing a bit of steam.

#### Figure 13 Monthly Flows \$USD — European Domiciled Convertible Bond Funds

Open-end Fund
 Exchange Traded Fund



Source: State Street Global Advisors, Morningstar, Bloomberg Finance, L.P., European Domiciled Open Ended Convertible Bond Funds, as of 31 December 2024.

### Issuance Trends

Convertible bond issuance tends to increase as equity markets rally. This was very visible in the years preceding the two large equity market falls of 2003 and 2007. Recent issuance has been more stable and diverse. It was also well balanced between European and US issuers. Healthy issuance helps market liquidity. Over the past five years, the US has remained a dominant issuer, followed by Asia. In particular, Taiwanese technology companies and Chinese consumer discretionary firms — internet retailers like Meituan, PinDuoDuo or Alibaba — have tapped the market with a large number of issuances. Meanwhile, European issuers have been less prone to use convertible bonds for their funding. As yields have increased and equity markets have risen, we may see a European comeback in 2025 and beyond.



Figure 14 Issuance Breakdown Per Region Per Calendar Year

Source: Bloomberg Finance, L.P. BofA Merrill Lynch Global Research, ICE Data Indices, LLC. Data from 31 December 1998 to 31 December 2024.

Figure 15

#### **Issuance and Redemptions Per Calendar Year**



Source: Bloomberg Finance, L.P. BofA Merrill Lynch Global Research, ICE Data Indices, LLC. Data from 31 December 1998 to 31 December 2024.

After two years of negative net issuance, 2024 marked the return to positive, shallow growth of the overall universe of convertible bonds. Overall issuers are borrowing money for general financing and refinancing. M&A funding through convertible bond issuance had been a trademark of this instrument but it slowed after the ultra-low-rate environment that followed the COVID pandemic.





Source: BofA Merrill Lynch Global Research, ICE Data Indices, LLC. Data from 31 December 1998 to 31 December 2024.

#### Conclusion

Soft landing? Rates normalisation? Better-than-expected recovery or a not-so-soft landing? Changes in regulation? Return enhancement for a fixed income portfolio? Protection in a global equity portfolio? There are many reasons to use convertible bonds in an investor portfolio.

Being able to have the option to participate in the upside of equity markets while relying on the bond floor in case of market downturns is key. The asymmetric return profile of convertibles is an ideal portfolio diversification tool, especially as the markets continue to blow hot and cold, and uncertainty remains elevated.

### Appendix

#### Drivers of Convertible Bond Risks and Returns

The price of a convertible bond is influenced by a number of factors. Its sensitivity to interest rate changes or to changes to the issuing company's credit quality stems from the bond component. In addition to the equity market sensitivity attributable to the option component, there are also other factors connected with derivative valuation, including price volatility of the underlying stock and the fair value of the option.

A convertible bond's price sensitivity to these factors changes over time and in response to market movements. A convertible bond will behave like a bond or a stock in different situations, so the risks associated with each convertible bond are assessed individually and in the context of the portfolio. The most important risk factors related to convertible bonds, the key data needed to quantify them (measures known as "Greeks", see page 19), and the general risks associated with this asset class are:

#### Bond-specific sensitivity

That are far out of the money behave like corporate bonds. When valuing future cash flows, interest rate and default risks must be taken into account. Rho is used as a measure of the interest rate sensitivity of the bond component of a convertible bond. A rho of -1.3 for the FTSE Qualified Global Convertible Index in aggregate means that the price of the convertible bond index will fall by 1.3 points if a 1% parallel upward shift in the yield curve occurs.

The default risk of a convertible bond is measured as credit risk premium (usually credit spread vs government bonds or swaps), and the corresponding price sensitivity to the credit risk premium is expressed using omicron.

#### Equity Sensitivity

The more a convertible bond is in the money, the greater the value of the embedded option. The equity sensitivity of convertible bonds of this kind can be attributed to the comparatively high probability of a conversion. If the option component is out of the money, equity sensitivity is low. **Delta**, which is expressed in either absolute or relative terms, is used to quantify equity sensitivity.

#### Option-specific Characteristics

In addition to the factors described above, option-specific factors such as volatility sensitivity and fair value also play a role in valuing a convertible bond. The value of the call option embedded in a convertible bond rises as the share price becomes more volatile because this increases the probability that the bondholder will exercise the conversion option at maturity. Sensitivity to changes in volatility is greatest for convertible bonds that are at the money. The second option-specific characteristic, time sensitivity, is expressed using **theta**. This is the amount by which the price of the convertible bond falls each day, all other factors being equal, due to time value decay.

#### • Liquidity Risk

A convertible bond's liquidity is another important aspect to consider, particularly in the event of small issue volumes. Liquidity bottlenecks can lead to a considerable increase in trading costs owing to higher bid-ask spreads or can even lead to a suspension of trading in a security. To reduce the risk of liquidity constraints, convertible bond index providers set minimum criteria in terms of market capitalisation, historical trading volume, and pricing quality. Given the crossover nature of convertible bonds, their liquidity cost/profile tends to be between that of an investment grade and that of a high yield universe.

#### Prospectus Risk

The individual structure of a convertible bond is described in its prospectus. A prospectus specifies a number of clauses or covenants — for example, when the issuer can call the bond and provides details on call protection and possible takeover protection. These clauses have a considerable impact on pricing, and it is important to analyse them carefully to understand the potential behaviour in various scenarios. A prospectus also includes information about the issuer, the bond's rank, the conversion ratio, any call and put procedures, and other details regarding takeover protection, dilution protection, sleeping investor clauses, etc. These features may be highly relevant in certain circumstances. Call and put conditions, for example, may have a significant influence on the pricing of convertible bonds.

#### Early Call

A company may have the right to redeem a convertible bond on certain fixed conditions. This right usually comes into force after a certain amount of time, also referenced as the call protection period. After the expiration of the call protection period, the company can redeem the convertible bond after a given notice period. If the call price is lower than the value of the underlying share, and if the deadline for a sale or conversion is missed, the investor in the convertible bond could incur significant losses.

#### • Put Rights on a Convertible Bond

While the company may have call rights, the investor may have put rights related to the convertible bond. Put rights allow the investor to return the convertible bond at the put price under certain circumstances. If the convertible bond is returned early (or "put") by the investor, the maturity term is brought forward to the relevant put date. If the put date for the convertible bond is missed, the maturity term is extended to the next put date or to the maturity date of the bond. This means that the current value of the bond component may decrease and, as a result, so will the price of the convertible bond.

#### The Greeks, Decoded

The key data needed to quantify convertible bond prices are collectively known as the Greeks. Below is an explanation of each term.

Sensitivity Measure	Definition
Delta	Measures the equity sensitivity or the relationship between a percent change in stock price and corresponding expected percent change in convertible price; it is also known as price elasticity.
Gamma	Measures the rate of change of delta with respect to the underlying asset or parity. When gamma is small, delta changes very slowly, while if gamma is large in absolute terms, delta is highly sensitive to movements in parity. Gamma is a measure of convexity and is the second derivative with respect to the underlying asset.
Rho	Sometimes known as bond delta — it expresses the correlation of movements between the convertible price and interest rates
Interest Rate Vega	Change in price of a convertible with respect to a 1% change in the volatility of interest rates
Stock Vega	Change in price of a convertible with respect to a 1% change in the volatility of the underlying stock
Theta	Amount by which the price of the convertible bond falls each day, all other factors being equal, due to time value decay
Omicron	Price sensitivity to the credit risk premium

Source: State Street Global Advisors, Bank of America Merrill Lynch.

#### Endnotes

1 FTSE Global Convertible Bond Index, as of 1 November 2024.

- 2 MSCI, as of 1 November 2024.
- 3 Bloomberg Finance, L.P., as of 1 November 2024.

#### About State Street Global Advisors

For over four decades, State Street Global Advisors has served the world's governments, institutions, and financial advisors. With a rigorous, risk-aware approach built on research, analysis, and market-tested experience, and as pioneers in index and ETF investing, we are always inventing new ways to invest. As a result, we have become the world's fourth-largest asset manager\* with US \$4.67 trillion<sup>+</sup> under our care.

\* Pensions & Investments Research Center, as of December 31, 2023.

\*This figure is presented as of March 31, 2025 and includes ETF AUM of \$1,553.58 billion USD of which approximately \$106.42 billion USD in gold assets with respect to SPDR products for which State Street Global Advisors Funds Distributors, LLC (SSGA FD) acts solely as the marketing agent. SSGA FD and State Street Global Advisors are affiliated. Please note all AUM is unaudited.

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Issuers of convertible securities may not be as financially strong as those issuing securities with higher credit ratings and may be more vulnerable to changes in the economy. Other risks associated with convertible bond investments include: Call risk, which is the risk that bond issuers may repay securities with higher coupon or interest rates, before the security maturity date, liquidity risk, which is the risk that certain types of investments may not be possible to sell the investment at any particular time or at an acceptable price; and investments in derivatives, which can be more sensitive to sudden fluctuations in interest rates or market prices, potential illiquidity of the markets, as well as potential loss of principal.

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Use of derivative instruments involves risks different from, and possibly greater than, the risks associated with investing directly in securities. A derivative is a financial contract where its value depends on, or is derived from, the value of an underlying asset, interest rate, or index and which can take several forms such as a forward, swap or option, including numerous variants of the same. Derivative transactions typically involve leverage and may have significant volatility. It is possible that a derivative transaction will result in a loss greater than the principal amount invested, and it may not be able to close out a derivative transaction at a favourable time or price. Risks associated with derivative instruments include potential changes in value in response to interest rate changes or other market developments or as a result of the counterparty's credit quality; the potential for the derivative transaction not to have the effect anticipated or a different or less favourable effect than anticipated; the failure of the counterparty to the derivative transaction to perform its obligations under the transaction or to settle a trade; possible mispricing or improper valuation of the derivative instrument;

imperfect correlation in the value of a derivative with the asset, currency, rate, or index underlying the derivative; the risk that it may be necessary to post collateral or margin with the counterparty, and will not be able to recover the collateral or margin in the event of the counterparty's insolvency or bankruptcy; the risk that losses will be experienced on the derivatives investments and on other portfolio investments, even when the derivatives investments may be intended in part or entirely to hedge those portfolio investments; the risks specific to the asset underlying the derivative instrument; lack of liquidity for the derivative instrument, including without limitation absence of a secondary trading market; the potential for reduced returns due to losses on the transaction and an increase in in volatility; the potential for the derivative transaction to have the effect of accelerating the recognition of gain; and legal risks arising from the documentation relating to the derivative transaction.

Options investing entail a high degree of risk and may not be appropriate for all investors.

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