Private Client Convertibles Strategy

Convertibles Primer

Convertibles Strategy | United States
23 April 2007

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The convertibles asset class

A convertible security is defined as any investment instrument that is not currently common stock, but can be converted into common stock at the holder's option. This includes commonly known securities such as convertible bonds and preferreds, but also extends to lesser known securities. The U.S. convertibles market totals nearly $300 billion.

Benefits of both worlds - combining bonds and equities

The basic structure of convertibles combines a fixed income instrument with an option on the equity. This allows investors to share in the upside of price appreciation in the underlying equity, which is something investors in straight bonds or preferreds would not receive. At the same time, the fixed income component of a convertible offers greater downside price protection than outright common stockholders have.

Improvement in portfolio risk profiles

The inclusion of convertibles in a portfolio of stocks and bonds can provide improved risk/return characteristics for investors, and can be considered as part of a broad asset allocation strategy. As convertibles do not move in unison with either stocks or bonds, their addition to a portfolio can dampen overall volatility and therefore reduce overall risk.

Understanding the basic structures

The majority of the market is represented by income-paying convertible bonds, although the structures of these securities can range from very debt-like to very equity-like. In this report, we explore the basic structures and examine the investment case for each.

Risks

Given the hybrid nature of convertibles, investors are exposed to a broad array of both equity and debt risks. Investment returns can be affected by the unique structures of these securities. Additionally, issues such as taxation and limited covenants present risks that should also be considered by investors in this asset class.

Investment strategies

We provide examples of strategies that we believe are applicable in a wide range of market conditions.

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Refer to important disclosures on page 36.

Please refer to the glossary beginning on page 29 to assist with understanding the terms that will be discussed throughout this report.

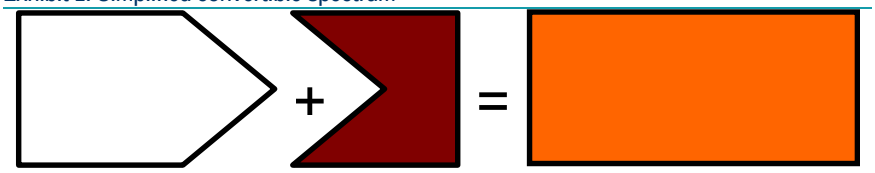
Introduction to convertibles

A convertible security is defined as any investment instrument that is not currently common stock, but can be converted into common stock at the holder's option. This includes commonly known securities such as convertible bonds and preferreds but also extends to lesser known securities.

Convertibles are hybrid securities that combine equity and debt features.

Convertibles are hybrid securities that combine equity and debt features. Through convertible securities, the investor participates in an equity's price appreciation with more limited downside risk.

Exhibit 1: Simplified convertible spectrum



Bond/Preferred **Warrant** **Convertible**

The debt feature provides income and downside protection. The equity feature provides stock sensitivity.

The debt feature of a convertible bond is derived from the convertible's stated coupon and claim to principal. As such, its price is subject to changes in interest rates and the credit worthiness of the issuer. The debt feature protects the convertible from a full decline in the price of the equity.

The equity feature is derived through the call option, or warrant, embedded in the bond and enables the convertible bond to participate in equity price appreciation. Accordingly, the value of the warrant is tied to factors affecting the underlying stock price. Refer to Table 1 for an illustration of how different variables affect the convertible's value.

Factors that affect a convertible's price are similar to those that would affect an individual warrant or bond value.

Table 1: Factors influencing convertibles

Change in Variable	Value of Convertible
Bond Effect	
Increase in Credit Spreads	-
Increase in Interest Rates	-
Addition of Investor Puts	+
Warrant Effect	
Increase in Stock Price	+
Increase in Volatility	+
Increase in Common Dividends	-
Maturity of Option	+
Combined Effects	
Increase in Issuer Call Risk	-

Source: Merrill Lynch.

The value of the embedded option is significantly affected by the volatility of the underlying stock. As volatility rises, the potential appreciation in the stock price increases, resulting in a higher convertible value. Conversely, an increase in common stock dividends decreases the value of the convertible as it diminishes its relative value compared to the stock. The longer the amount of time left on the warrant feature, the higher its value.

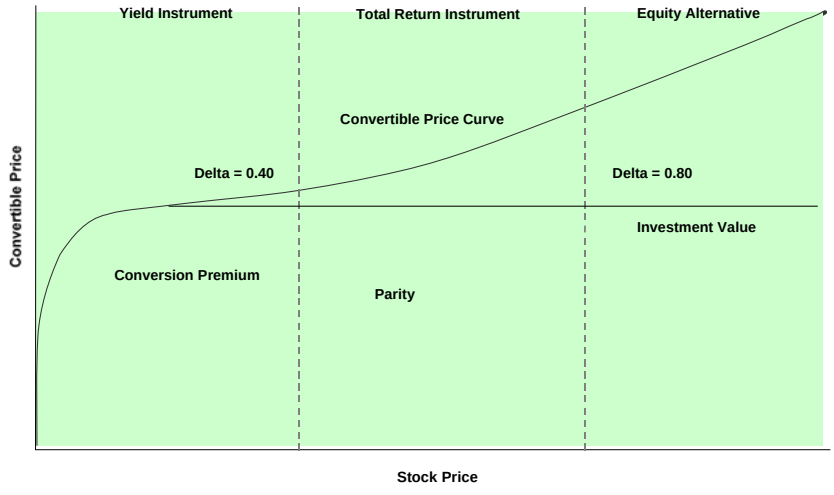
Convertibles exhibit hybrid behavior

Yield and conversion premium are two main determinants of convertible behavior.

The two main determinants of a convertible's behavior are its yield and its conversion premium. As investments, convertibles can generally be characterized into one of three categories: (1) yield instrument/straight debt alternative, (2) total return instrument, or (3) equity alternative. To illustrate the pricing dynamics of convertibles and these categories, we constructed a theoretical price curve in Chart 1. The underlying stock price is reflected along the horizontal axis, while the convertible's price is depicted along the vertical axis.

- **Yield instrument/straight debt alternative** – Convertibles in this category are characterized by relatively high yields/conversion premiums. Given that the warrant price for converting to equity (equity option) is so far out of the money (i.e., unlikely to be exercised given the stock price), the security acts almost like a pure debt instrument with little regard for the equity option. Also called a "busted" convert, this type is shown in the left-hand side of Chart 1.
- **Total return instrument** – Convertibles in this category exhibit ideal characteristics of a convertible investment. Characterized by moderate yields/conversion premiums and a good level of equity sensitivity. This type of convertible is illustrated in the middle section of Chart 1.
- **Equity alternative** – Convertibles in this category behave very close to a pure equity investment. Characterized by low yields/conversion premiums and a high degree of equity sensitivity. This type of convertible is illustrated in the right-hand side of Chart 1.

Chart 1: Hybrid behavior



Source: Merrill Lynch Convertible Reseach.

The investment value (i.e., straight bond value ignoring the conversion feature) is independent of the price of the underlying stock and hence appears as a flat line in the graph. It provides a theoretical floor below which the bond should not trade, given an unchanged interest rate environment. In practice, the fixed income component is not an absolute floor, because it will shift in relation to the general level of interest rates and the company's credit quality. For very low values of equity, the convertible price drops with the equity because such low equity levels are associated with sharply worsening credit quality and a reduced probability of corporate survival.

Key Definitions:

Investment value- Value as a straight bond, ignoring conversion feature. In an unchanged interest rate environment, it provides a theoretical floor for the convertible price, and is illustrated in Chart 1 as the horizontal line.

Parity- The value of the convertible if it were to be converted into stock. Also known as "conversion value," it is represented in Chart 1 by the diagonal line.

Conversion premium- Expressed as a percentage, the amount by which the convertible price exceeds its conversion value (parity). It is reflected in Chart 1 as the shaded area between parity and the convertible price curve.

Delta- A measure of the convertible's price sensitivity to underlying stock price movements.

Refer to a full glossary on page 29.

The investment value cushions the downside pricing movements and acts as a "floor."

The "sweet spot" of convertible investing is the total return region.

The convertible price lies above the greater of parity and straight bond value.

Table 2: Illustrative Convertible Example #1

Price at Issue	100.00
Current price	87.00
Stock price	$19.00
Conversion premium	44%
Coupon/Current yield	2.95%/3.40%
Conversion ratio (per $1000)	31.70
Parity	60.20

Source: Merrill Lynch.

Table 3: Sensitivity analysis- Example #1

	Stock up 25%	Stock down 25%
Convert price	94(↑8%)	75(↓13%)
Stock price	$23.75	$14.25
Conversion premium	25%	66%
Current yield	3.10%	3.90%
Conversion ratio	31.70	31.70
Parity	75	45

Source: Merrill Lynch.

Table 4: Illustrative Convertible Example #2

Price at Issue	100.00
Current price	174.00
Stock price	$43.00
Conversion premium	1%
Coupon/Current yield	2.625%/1.53%
Conversion ratio (per $1000)	40.22
Parity	172.00

Source: Merrill Lynch.

Table 5: Sensitivity analysis- Example #2

	Stock up 25%	Stock down 25%
Convert price	217(↑25%)	132(↓24%)
Stock price	$53.75	$32.25
Conversion premium	0%	2%
Current yield	1.21%	2.00%
Conversion ratio	40.22	40.22
Parity	216	130

Source: Merrill Lynch.

As the underlying equity increases, the parity (conversion value) of the bond also increases because parity is directly proportional to the price of the underlying equity. The "sweet spot" of convertible investing is the Total Return region. Here, the convertible offers a compelling risk/reward profile, enjoying greater participation with the equity on the upside than it suffers if the equity drops.

Provided the convertible bond is not about to be called by the issuer or the common does not out-yield the convertible, the convertible price lies above the greater of parity and straight bond value. A bondholder can always get parity by converting the bond to equity. In the event of a fall in the stock price, the convertible price is supported by the investment value of the bond, which is illustrated by the convertible price curve in Chart 1.

The following examples illustrate how a convertible reacts to changes in the stock price, and can shift up and down the parity line

Illustrative examples

Table 2 provides relevant summary data for a working example of a convertible.

- ***Parity*** = Conversion Ratio X Current Stock Price
  = 31.7 X $19
  = $602, or 60.20 in points
- ***Conversion Premium*** = $\frac{\text{Convertible Price - Parity}}{\text{Parity}}$
  = $\frac{87 - 60.20}{60.20}$
  = 44%

To provide an idea of how this convertible reacts to changes in the equity price, we summarized the results in Table 3 for both a 25% increase in stock price and a 25% decrease in stock price. As shown, the convertible increases to 94 from 87 (+8%) on a 25% move on the stock. As the underlying equity price increases, parity increases and the conversion premium declines. Conversely, the convertible declines to 75 (-13%) for a 25% decline in the stock. As the underlying equity price declines, parity also falls and the conversion premium grows even larger. This convertible demonstrates only modest equity sensitivity on the upside, given that the convertible only increases 8% for a 25% increase in the stock. In addition, the downside sensitivity of this convertible (-13%) is greater than the upside, which is not ideal. On the other hand, it does provide yield with much greater downside protection than owning the underlying stock.

As another example, Table 4 shows a security whose price is more sensitive to changes in the underlying stock price. Both parity and the conversion premium are calculated the same way as discussed above. When looking at sensitivities, however, there are considerable differences between these two convertibles.

As illustrated, the convertible has risen in price significantly since issuance (174 current price), suggesting the underlying equity has performed well. Similar to what was shown in the previous example, the conversion premium will generally decline as the stock price rises. In this example, the conversion premium is only 1%, suggesting that both the stock and the convertible have enjoyed considerable appreciation since issuance. As a result, the convertible now exhibits extreme equity sensitivity with virtually 1-to-1 pricing changes. For a 25% increase in the stock price, the convertible's price also increases 25%. For a 25% decline in the stock price, the convertible's price declines 24%. This example is characteristic of an "equity alternative," as illustrated in the right hand side of Chart 1.

Reasons for investing in convertibles

Through their unique combination of debt and equity features, convertibles offer advantages over straight debt and equity instruments.

Combining advantages of equities and bonds into one security.

- **Current yield advantage over equities**
- **Participation in equity upside, with less downside than common stock**
- **Improved risk profile of a portfolio**
- **Broader investment** opportunities

Current yield advantage over equities

Convertible bonds generally offer a current yield advantage over the underlying equity, which on average is presently about 2% for our master convertibles index (i.e., the convertibles yield ~2% more than their underlying equities). We note, however, that the range of yield advantage varies widely by individual securities, and some convertibles may yield less than the common stock. The value of the convertible relative to its underlying stock increases with its yield advantage.

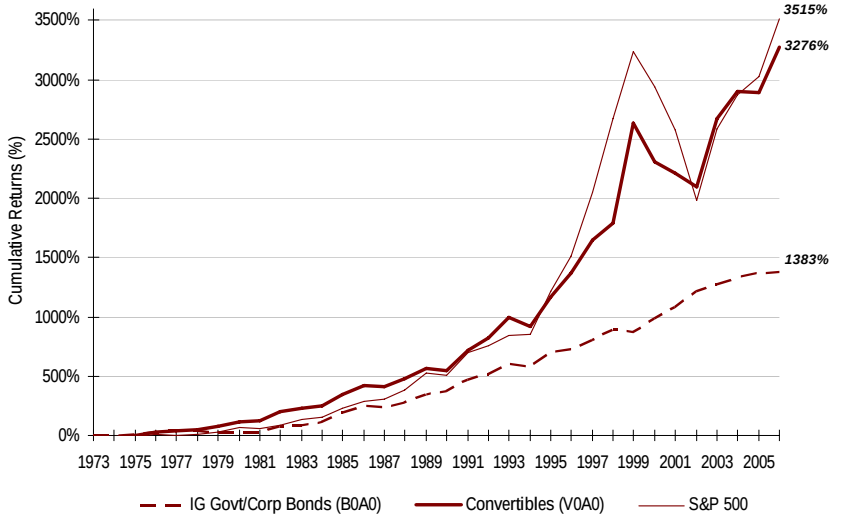
Participation in equity upside, with less downside than common stock

Convertibles by nature are hybrid securities. The fixed income aspect of the security provides downside support, while the embedded call option supplies the potential for participation with the common stock's gains. In the event of bankruptcy, convertibles rank higher in the capital structure than common stockholders. As discussed in the preceding section entitled "Convertibles exhibit hybrid behavior", the bond investment value serves as a "floor" for the convertible price.

Equity-like performance over complete market cycles.

The price of a convertible security will normally not rise as rapidly as the common stock in a favorable market environment, nor will it be quite as defensive as a straight bond in a declining stock market environment. Nevertheless, a portfolio of convertibles will often exhibit comparable or even superior behavior to either instrument over complete market cycles. The following chart illustrates cumulative total annual returns going back to 1973 for stocks, convertibles and bonds.

Chart 2: Cumulative total returns (12/73 –12/06)



Source: Merrill Lynch Convertible Research. Represents cumulative total annual returns.

Risk-adjusted returns are compelling

Higher yields, greater downside protection, and seniority over the common lead to lower risk.

In comparison with their underlying common stock, convertibles generally provide higher yields, greater downside protection, and seniority over common with regard to income distribution and in cases of liquidation. This has enabled convertibles to offer superior *risk-adjusted* returns compared to equity indices over complete market cycles.

Sharpe ratio as a measure of risk

We use the Sharpe ratio as our measure of risk. The Sharpe ratio measures the return above the risk-free rate (3-month US Treasuries) in relationship to the risk borne by the investor. Risk is measured by annualizing weekly standard deviations. The higher the ratio the better, as it indicates a greater level of return relative to the risk.

Sharpe Ratio = (Total Return - Risk Free Rate) / Standard Deviation

Table 6: Sharpe ratio analysis (12/89-12/06)

	Ann'd Return	Standard Deviation	Sharpe Ratio
All Traditional Convertibles (Ticker: V0A0)	10.49%	10.44%	*0.58*
All Trad Invest Grade Converts (Ticker: V0A1)	8.69%	8.28%	*0.51*
All Trad Spec Grade Converts (Ticker: V0A2)	11.34%	12.36%	*0.56*
S&P 500	10.83%	14.72%	*0.43*
Russell 2000	11.10%	17.62%	*0.38*
NASDAQ Composite	11.23%	23.29%	*0.29*
ML Corp. & Govt. Master Index (Ticker: B0A0)	7.22%	4.23%	*0.66*
ML US High Yield Cash Pay (Ticker: J0A0)	9.32%	4.62%	*1.06*

Source: Merrill Lynch Convertible Research. Tickers shown indicate Bloomberg tickers for ML Indices.

Convertibles exhibit higher Sharpe ratios than equities, indicating more favorable risk adjusted returns.

The data in the above table help illustrate the hybrid return and risk characteristics of convertibles. Over the period analyzed, convertibles exhibited total returns that were comparable with stocks while also exhibiting a lower standard deviation of returns. As a result, the Sharpe ratio for each class of convertibles compares favorably to stocks. Compared to bonds, convertibles provided stronger returns. However, this return performance came with higher risk, as the convertibles' standard deviation levels were much higher than those of bonds, resulting in less favorable Sharpe ratios.

Improved risk profile of a portfolio

Because convertibles are not perfectly correlated with either stocks or bonds, the addition of convertibles to portfolios of stocks or bonds can decrease the overall risk level of the portfolio, and help to maintain or improve return levels. Investors can refer to a further discussion of asset allocation strategies in our Fixed Income Digest report entitled "*Asset Allocation for Bond Investors*" dated January 22, 2007.

A portfolio is said to be *efficient* if there is no portfolio having the same return with lower risk.

Investing is generally based on a risk-return tradeoff. In order to obtain greater expected returns, investors must generally assume greater risk. Other things equal, for a specified level of return, investors prefer less risk to more risk. A portfolio is said to be *efficient* if there is no portfolio having the same return with a lower level of risk (i.e., standard deviation of returns). To construct the risk/reward profiles of portfolios, we consider historical returns, standard deviation and correlation of each asset class.

Importance of correlation in reducing portfolio risk

Investors must consider the profiles of each asset class and their interrelationships.

Evaluating the correlation of investment performance among asset classes is of critical importance when implementing sound asset allocation techniques for portfolios. It is not enough to consider the individual risk/reward profiles of each asset class. Rather, investors should also consider how the asset classes perform relative to each other. All things equal, the lower the correlation among different asset classes, the greater the potential rewards from diversification.

Since convertibles do not move in perfect unison with stocks and bonds, their addition to a portfolio can dampen the overall volatility of a portfolio.

Investors that have the ability to allocate between stocks and bonds should consider convertibles as an additional asset class for enhancing portfolios. Convertibles tend to be more highly correlated with equities, while offering low correlations to bonds. Since convertibles do not move in perfect unison with stocks and bonds, their addition to a portfolio can dampen the overall volatility of a portfolio.

Table 7: Correlation matrix

	SP500	Gov't/Corp. Bonds	Convertibles
S&P 500	1.000	0.062	0.772
Gov't./Corp.Bonds		1.000	0.040
Convertibles			1.000

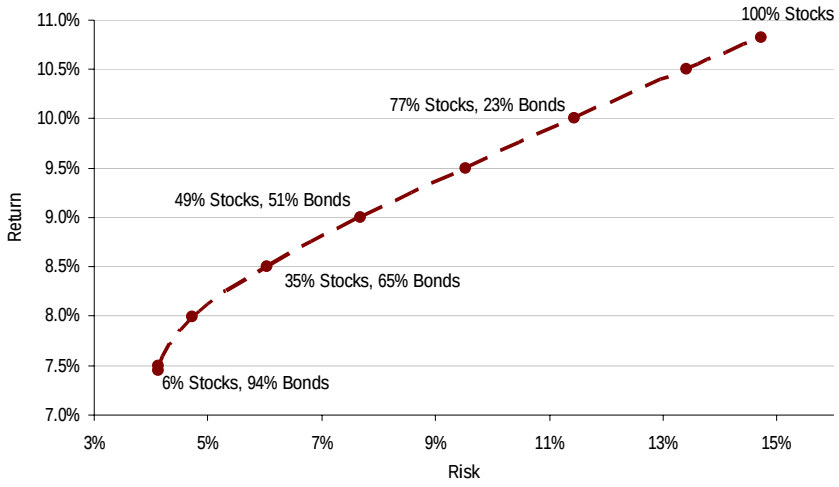
Source: Merrill Lynch Convertible Research

Efficient frontier analysis

Diversification of a portfolio across asset classes can reduce overall risk.

In terms of quantifying the role convertibles can play in portfolio management, we can construct two sets of "efficient" portfolios. The first portfolio will be allocated solely between stocks and bonds, the second – between stocks, bonds and convertibles. First, consider the efficient frontier possible with various combinations of stocks and bonds. As can be seen from the graph below, to achieve a return of 10.8% over the 1989-2006 period required an all-stock portfolio. However, this also resulted in assuming the greatest levels of risk, with a standard deviation of 14.7%. To achieve a return of 9%, the least risk we achieve was 7.7% with a portfolio of 49% in stocks and 51% in bonds.

Chart 3: Stocks and bonds efficient frontier

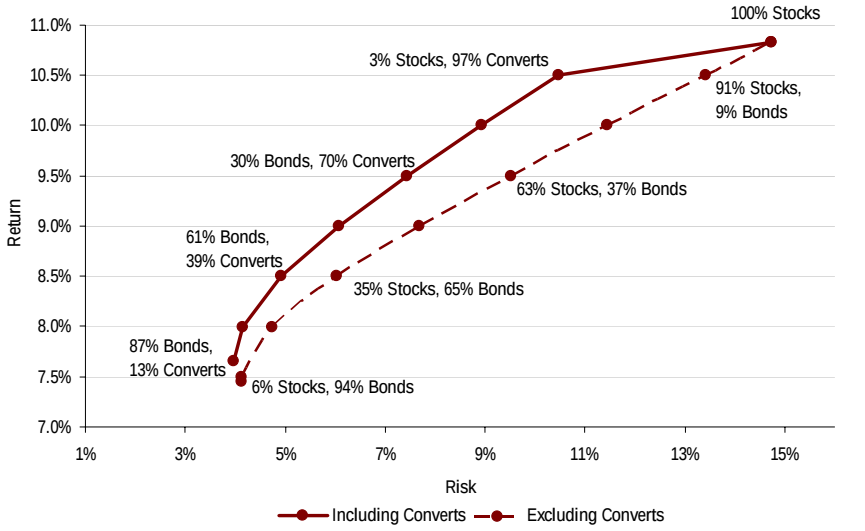


Source: Merrill Lynch Convertible Research. Period covers 1989-2006.

However, if we include convertibles in the mix of available assets, the results have been more favorable. The darker line in the chart below is the efficient frontier with all three asset classes being considered, while the dotted line is the stock and bond frontier as noted in the preceding chart. As illustrated in the chart, with the inclusion of convertibles in the portfolio, the efficient frontier moves up and to the left. This indicates that the inclusion of convertibles as an available asset class allows the same return to be achieved with lower risk (or a higher return with the same risk) than if just a combination of stocks and bonds were used. That is, to achieve a return of 9%, the lowest risk we needed to take dropped to 6.1%.

Inclusion of convertibles in the portfolio allows the same return to be achieved with lower risk than if just a combination of stocks and bonds were used.

`Chart 4: Stocks, bonds and convertibles efficient frontier



Source: Merrill Lynch Convertible Research.

Interestingly, the decrease in risk comes from replacing the portfolio's stock allocation with convertibles.

Based on this statistical analysis, convertibles clearly push the efficient frontier out beyond the returns possible with just stocks and bonds. Moreover, these results indicate that replacing the portfolio's stock allocation with convertibles results in a decrease in risk for the portfolios with a required rate of return of 10.5% or less. Of course, these represent historical results and similar results in the future cannot be assured.

Broader investment opportunities

The diversity of convertible structures and their investment characteristics offer alternatives to meet a variety of investment objectives. Equity investors with a minimum yield requirement may be able to invest in a company through the convertibles as opposed to the common stock. In addition, risk-averse equity investors may look to convertibles as a way to hold a more defensive instrument.

Bond investors who cannot hold straight equity may be able to gain access to the company through a convertible. Fixed income managers looking to add "alpha" (i.e., a return in excess of an established benchmark) to their performance can consider convertibles as a way to obtain some equity exposure by sacrificing a certain amount of income.

Risks

Given the hybrid nature of these securities, investors are exposed to a broad array of both equity and debt market considerations that can include the following:

Equity risks

- **Underlying common stock performance** – Movements in stock price and/or volatility levels will affect convertible valuations.
- **Higher common stock dividends** – Increases in common dividends will reduce the value of the convertible as it diminishes its relative value compared to the stock.

Credit risks

The majority of the convertibles market is made up of below investment grade and unrated issues.

- **Declining credit quality and/or widening credit spreads** – The underlying bond value can fluctuate depending on market conditions or changes in company fundamentals. We note that 60% of the convertibles market is comprised of high yield and unrated issues, as discussed further on page 11.
- **Higher interest rates** – Rising interest rates will impair the underlying bond valuations.
- **Lower than assumed bond investment value (e.g., recovery value)** – The bond "floor" serves to limit the downside in the convertible caused by equity declines and/or deteriorating credit trends. However, these valuation assumptions can be subjective and highly uncertain, particularly in the case of distressed credits. As discussed on pages 22-24, mandatory convertibles do not offer investors a bond "floor".

Investors do not enjoy covenants that would normally be associated with traditional bonds.

- **Lack of covenants** – Unlike straight corporate bonds, convertibles generally offer investors no protection in the form of financial covenants. This effectively gives the company great latitude in adding debt, selling assets, etc., which can greatly reduce asset coverage for creditors. While not an important point for convertibles that are "equity alternatives", this is a material consideration for "busted" convertibles (e.g., bond alternatives).

Other

- **Taxation** – Convertibles have a wide range of income tax considerations regarding coupon, principal accretion, and conversion that can vary by structure and issue. In some cases, investors are taxed for a larger portion of income than has been received, resulting in reduced (sometimes negative) cash flow. ***Refer to further discussion of tax matters, "contingent payments", and "phantom income" on pages 16, 18 and 35***.
- **Call provisions** – Call features allow the issues to be called, which can negatively affect investment returns. Convertibles generally carry some form of call protection for a period of time, though terms can vary as discussed more on page 16.
- **Liquidity** – Some structures and/or issues may be illiquid, resulting in limited ability to buy/sell and/or unfavorable pricing. Investors can look to sources such as TRACE (Trade Reporting & Compliance Engine) for public information on pricing and volume (see website *www.nasdbondinfo.com*).

Investors should always read the prospectus before investing.

General market risk across the capital markets, as well as individual security features can impact convertible valuations. Naturally, the risk attributes depend on whether the convertible is considered an equity alternative, a debt alternative, or a total return instrument. Understanding the mechanics of convertibles and their structures can help investors better understand the associated investment risks of this asset class. These attributes are discussed throughout this report. *In addition, investors should always read the prospectus before investing.*

Reasons companies issue converts

- Cost dynamics
- Financial flexibility
- Market dynamics

Cost dynamics

Lower coupon/YTM - A convertible issuer pays a lower interest rate than on straight debt, which can provide significant cash savings for the company.

Premium equity - The issuer is effectively issuing equity at a premium to the underlying equity price.

Less dilutive - The issuer is raising equity capital on a deferred basis; actual dilution is deferred until conversion of the convertible.

Monetizing equity volatility - The higher the volatility of a company, the greater the option component of the convertible, enabling a lower coupon to be paid.

Financial flexibility

Fewer restrictive covenants - Convertibles have fewer restrictive covenants and can minimize the impact on senior debt capacity, if the convertible is issued as a subordinated issue.

Liberal call provisions - Convertibles typically have shorter call protection than straight debt.

Customization of structure - Features can easily be added to a convertible structure to fit a company's financial situation.

Rating agency considerations - The range of convertible products runs from highly equity-like to highly debt-like structures, garnering different equity credit from the rating agencies.

Market dynamics

Quick access to market - Compared to equities. Convertibles can be issued as quickly as the same day or overnight via a Rule 144A offering. See a further discussion of Rule 144A offerings in the next section entitled "Market characteristics."

Different investor universe - Which can provide a company with incremental proceeds.

Access to debt markets - Allowing companies with weaker credit profile access to the public debt markets at reduced interest rates.

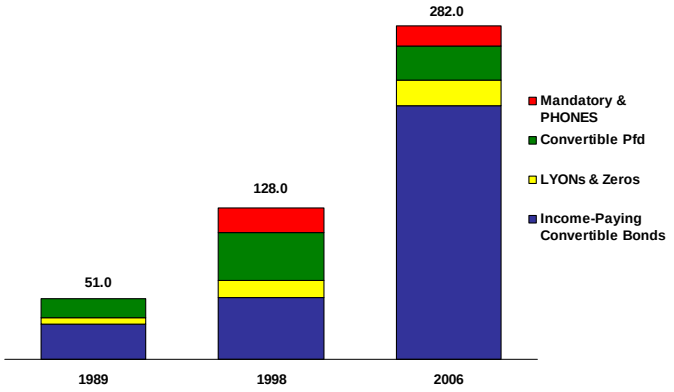
Broad investor appeal - Due to their hybrid nature, convertibles attract a variety of investors with different financial objectives.

Market characteristics

The U.S. convertible market has a market value approaching $300 billion, up from $282 billion at year end 2006, and only $128 billion at year end 1998.

Today, the U.S. convertible market has a market value approaching $300 billion and contains many variations of the "plain vanilla" convertible. As illustrated in the following chart, the market has witnessed significant growth as issuers and investors have been attracted to the mutual benefits of this asset class.

Chart 5: Convertible market value breakdown ($ billions)



Source: Merrill Lynch Convertible Research.

Table 8: Convertible market structure (VXA0)

	1998	2002	2006
Number of Issues	527	598	704
Market Value ($bns)	$128	$212	$282
Current Yield	4.70%	4.25%	3.00%
YTM	3.81%	5.13%	1.44%
Conversion Premium	34.0%	98.0%	30.0%
Investment Value Premium	97.2%	19.6%	49.0%
Parity Delta	0.69	0.44	0.66
Percent Cheap/(Rich)	2.72%	1.55%	-0.43%
Average Rating	BB+	BB+	BB+

Source: Merrill Lynch Convertible Research. Represents ML Broad convert index (Bloomberg Ticker: VXA0) at year end.

Structures: While there are many variations of convertibles, the traditional income paying convertible bond structure type continues to dominate the overall market. This segment represents over 75% of the total value. Convertible preferreds represents the next largest segment at 10% of the total.

YTM: Average yield to maturity of the market is relatively low at 1.44%, which is representative of the current low-yield/tight-spread fixed income environment.

Conversion and investment value premiums: Average conversion premium of the market stands at a favorable 30%, down sharply from 2002 because of the equity market rally of the last several years. Average investment value premium is currently at 49%, higher than ideal but still much better than in the late '90s.

Valuation: Average discount to theoretical value (based on proprietary ML models discussed later in this report) stands at 0.43% *rich (i.e., converts appear expensive)*. We believe this partly reflects expectations of higher volatility that are being priced into the market. Nonetheless, investors may need to look harder for good relative value in an arguably expensive marketplace.

Table 9: Market breakdown by sector

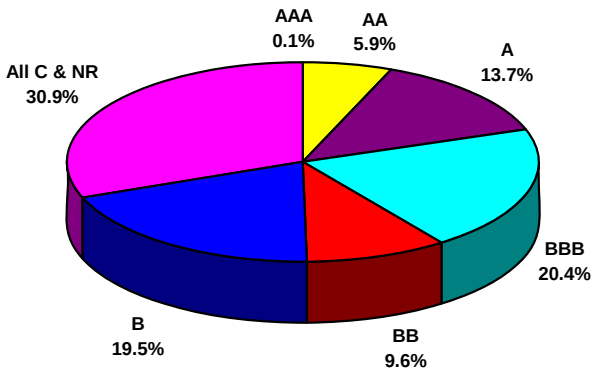
Sector Name	2006
Financials	20.6%
Healthcare	19.3%
Technology	17.4%
Consumer Discretionary	12.5%
Energy	7.2%
Industrials	5.9%
Media	5.5%
Telecommunications	3.7%
Materials	2.4%
Transportation	2.4%
Utilities	2.3%
Consumer Staples	0.8%
	100.0%

Source: Merrill Lynch Convertible Research.

Credit quality and sector breakdowns: Credit quality runs the full spectrum of investment grade to non-investment grade, with an average credit rating of BB+. Approximately 40% of the market value of the convertible universe is investment grade, with the remainder comprised of both high yield and unrated issues. By sector, there is also a wide range of securities, though four sectors (Financials, Healthcare, Technology and Consumer) account for nearly 70% of the market.

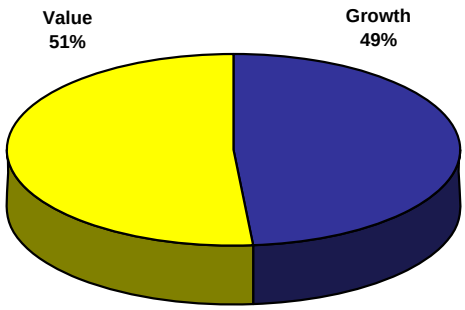
Investment objective: Looking at investment objective characteristics, the largest segment is "total return", representing 43% of the total. As indicated before, this part of the spectrum is ideal (the "sweet spot" of convertible investing) with deltas ranging from .40 to .80. The rest of the market is almost equally split between "equity alternatives" and "yield alternatives."

Chart 6: Breakdown by credit quality (as at YE 2006)



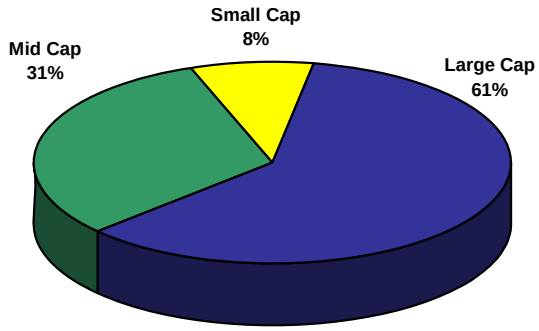
Source: Merrill Lynch Convertible Research.

Chart 7: Breakdown by investment style (as at YE 2006)



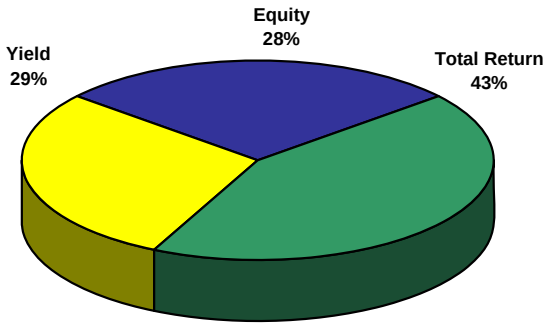
Source: Merrill Lynch Convertible Research.

Chart 8: Breakdown by size (as at YE 2006)



Source: Merrill Lynch Convertible Research

Chart 9: Breakdown by investment objective (as at YE 2006)



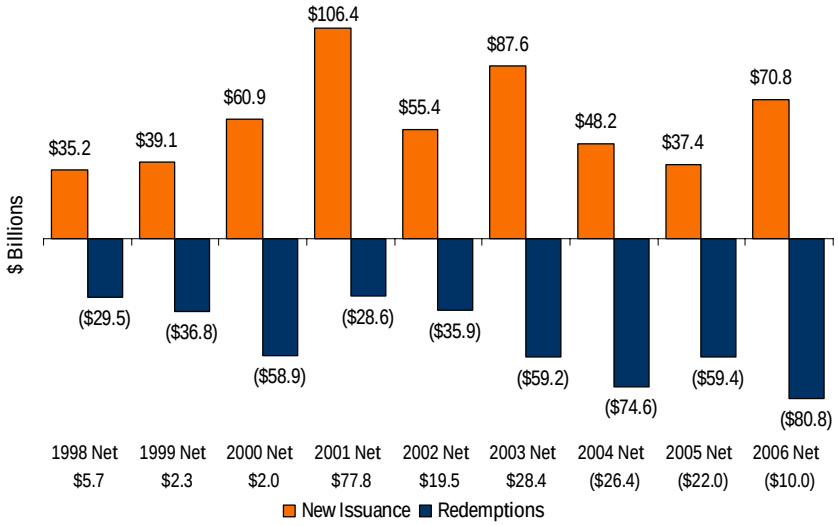
Source: Merrill Lynch Convertible Research

New issuance trends

New issuance has not kept pace with redemptions in recent years.

Reversing a recent trend of modest new issuance, 2006 marked the third best year on record with almost $71 billion. Redemptions, however, have remained high, resulting in negative net new issuance for the last three years. For 2007, the Merrill Lynch Convertible Research team is expecting healthy convertible new issuance of about $60-70 billion, with redemptions moderating at $60 billion.

Chart 10: New Issuance & Redemptions



Source: Merrill Lynch Convertible Research.

As the market was in its earlier growth years, new offerings were diversified across the various structure types, as illustrated in the table below. In recent years, however, the market has shifted back to the traditional convertible bond structure. In fact, this structure accounted for over 94% of all issuance in 2006.

A surge in 144A offerings has led to declining investments by individual investors.

Another notable shift in issuance trends has been among those that are registered with the SEC, and those that are unregistered (e.g., Rule 144A). As corporations have sought to lower filing, legal and other administrative costs, Rule 144A offerings have grown to over 70% of new issuance in 2006 from under 50% in the late 1990's. This has had the effect of reduced investment opportunities for individual investors in the convertible primary market. Most unregistered convertibles become registered within 3-6 months of their issuance.

Table 10: New issue breakdown

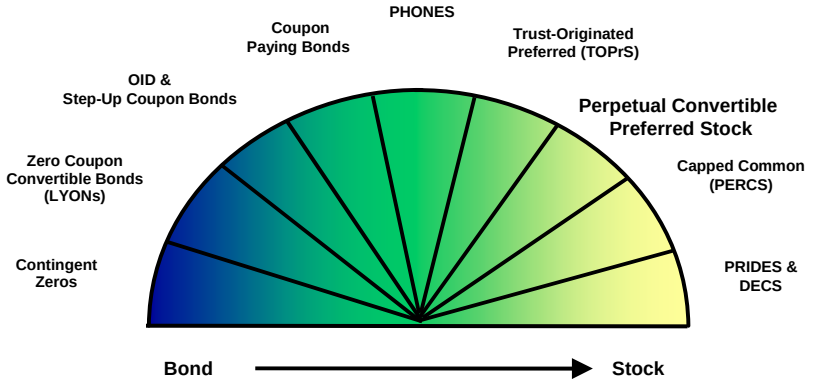
	1998	1999	2000	2001	2002	2003	2004	2005	2006
Underwritten Issues Proceeds ($bns)	$35.3	$39.1	$60.9	$106.4	$55.4	$87.6	$45.9	$37.4	$70.8
By Structure Type:									
Convertible Bonds	29.9%	43.3%	53.3%	44.0%	39.2%	84.1%	66.5%	88.0%	94.1%
LYONs & Zeros	12.5%	7.3%	30.4%	36.2%	18.6%	6.6%	6.8%	0.0%	0.0%
Convertible Pfd	33.1%	17.5%	11.5%	5.1%	13.4%	2.1%	14.8%	8.7%	3.4%
Mandatory Conversion Pfd.	24.5%	31.9%	4.8%	14.7%	28.8%	7.2%	11.9%	3.3%	2.5%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
By Registration Type:									
SEC Registered	56.0%	55.4%	43.5%	33.8%	55.9%	21.6%	30.5%	37.3%	29.3%
Rule 144A All Types	44.0%	44.6%	56.5%	66.2%	44.1%	78.4%	69.5%	62.7%	70.7%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Merrill Lynch Convertible Research.

Convertible structures

Convertible products can range from very debt-like to very equity-like, depending on the exact type of product and terms.

Chart 11: Convertible structure spectrum



Issuer considerations drive structures

The structure used by issuers will depend on a variety of internal and external considerations:

Internal issues

Internal factors are considered by issuers when choosing a structure…

- **Desire for debt vs. equity –** A company's desire to maintain a certain debt to equity ratio will affect its decision on whether to go with a security that is more debt- or equity-like.
- **Time frame** – What maturity of a company's convertible best fits into its strategic plan?
- **Current stock valuation & liquidity** – A company prefers to issue debt when its stock price is low which would increase dilution to shareholders.
- **Tax position** – Interest from bonds is tax deductible for the issuer, while dividends on preferred stock are not. "Phantom income" on Zero coupon/OID bonds results in a company deducting more interest for tax purposes than it is actually paying.
- **Dilution tolerance** – Investment grade companies with low stock volatility prefer less dilution.
- **Ranking** – Can be senior, subordinated or preferred. This will be affected by covenants in a company's bank and senior debt among other factors.

External issues

…as are external factors.

- **Rating agency pressure** – Does the company care about how the issuance of the convertible will affect the credit rating of the company?
- **Stock market outlook** – In a bullish stock market environment, a company will not want to give away its stock too cheaply.
- **Interest rate outlook –** Anticipation of a rise in interest rates will make a company want to lock in longer term debt at lower rates.
- **Supply/demand factors by market** – The type of instruments investors are looking for in the market environment.

Five basic structures

The secondary and primary markets are dominated by cash-pay bond structures. Over the years, however, expansion of the convertible market spawned a need for product innovations tailored to issuer and investor needs. These product innovations have generated a plethora of brand names, which can be confusing to even the most seasoned convertible user. For the purpose of simplification, we have sorted this "alphabet soup" of convertible products into five main groups:

Traditional income paying bonds represent over 75% of the market, though many other structures exist.

- **Cash-pay bonds**
- **Zero-coupon bonds (e.g., LYONs-type)**
- **Traditional and Trust Originated Preferreds**
- **PERCS-type mandatory preferreds**
- **PRIDES-type mandatory preferreds**

While newer structures might be radically different from these five categories from an issuer's point of view, from an average investor's point of view, most currently existing convertible products broadly fall into one of these groups. In the next few pages, we give a description of each of the product types and horizon analysis graphs for each of these five categories. Given the relative importance of cash-pay bonds, we will explore this structure in the greatest detail.

Cash-pay bonds and traditional preferreds: standard convertibles

Convertible bonds and convertible preferreds share the basic fixed income structures of their namesakes – a fixed coupon or dividend rate, priority in regard to income and liquidation, a fixed maturity (for bonds), early redemption provisions, anti-takeover features and put options (for bonds). Of course, they are also convertible into stock. Hence, we will discuss these structures together.

Typically they have the following terms:

Conversion privilege – The conversion privilege is usually described in terms of a conversion price or a **conversion ratio** (number of shares obtainable by converting one share of preferred or one $1,000 bond). When initially sold, the conversion price may be set anywhere from 15% to 50% above the market price of the underlying common stock, with 20%-30% being the most common range. Most bonds issued since 2000-2001 have "contingent conversion" features which limit an investor's ability to convert unless pre-set conditions are met, while other issues may offer conversion at the option of the investor over the life of the issue. Refer to a further discussion of contingent conversion later in this report.

Coupon – Coupon and dividend rates are generally set below what the issuer would have to pay in the non-convertible market, typically 300-500 bps below. The coupon or dividend rate typically ranges from 100 to 400 bps above the common stock yield.

Maturity – Convertible bond maturities can vary from intermediate to long term (generally 7-30 years). Many bonds offer longer-term maturities (e.g., 20-30 years) with 5-7 year puts that require the issuer to redeem the security at a holder's option, effectively shortening the bond's maturity. Given the prevalence of put options, we estimate that virtually all bonds outstanding have effective maturities ranging from 5-10 years. The puts are generally at par or the accreted value of the convertible. Traditional convertible preferreds are often perpetual but a number of issues can include mandatory redemption features. This effectively sets a "maturity date" that is commonly 20-30 years, but can be as short as ten years after issue.

Issues typically carry call protection, though terms vary.

Call protection – A typical convertible bond or preferred contains some form of protection to prevent the issue from being called for some period of time. Restrictions on the issuer's right to call a convert come in two forms, which sometimes are combined in the same issue. ***Hard call protection*** (most common) simply prohibits redemption under any circumstances. ***Provisional or "soft" call protection*** prohibits redemption unless the underlying common reaches a certain threshold price level. For example, redemption might be prohibited unless the closing price of the underlying stock is at least 150% of the conversion price for any 20 out of 30 consecutive trading days. The length of call protection is most often 5-7 years, but it may range from 2-10 years. Like other terms, this is subject to change with market conditions.

Most cash-pay bonds rank as senior unsecured obligations.

Subordination – Convertibles can rank at various levels of seniority within the capital structure, a basic illustration of which is shown in Table 11. The majority of convertible bonds are ***senior unsecured debt***, ranking equally with other senior unsecured obligations. There are also convertible bonds classified as ***senior subordinated*** or ***subordinated debt,*** ranking junior to any senior unsubordinated debt, whether existing or prospective. ***Convertible trust preferreds*** generally rank at the level of the debt underlying it (most have subordinated debt). ***Traditional convertible preferreds***, as a class of equity, rank below all debt but ahead of common stock in the capital structure. In most cases, it ranks equally with other preferred stocks. Preferreds may be further stratified using the designations ***"junior"*** or ***"second,"*** if the terms of another series of preferreds give it priority.

Table 11: Basic capital structure hierarchy

Senior secured debtholders	*Most senior*
Senior unsecured debtholders	.
Senior subordinated debtholders	.
Junior debtholders	.
Preferred stockholders	.
Common stockholders	*Most junior*

Source: Merrill Lynch. Illustrates seniority of capital structure of a solvent company.

Taxation – As a general rule, conversion is not a taxable event. An investor's basis in the convertible is carried over to the stock received upon conversion. The main exception to this is for ***"exchangeable" convertibles***, where conversion is into stock of a different corporation than the issuer. In addition, conversion into a package of stock and cash, or stock and bonds, is taxable with regard to the non-stock portion of the package.

Interest payments on convertible debt, trust preferreds and a portion of the mandatory preferred payment, attributable to an underlying fixed income instrument, are taxed at the investor level as ordinary income. Dividends on traditional convertible preferreds (not issued through a trust) are dividend income, which is currently taxed at the long-term capital gains rate (e.g., qualified dividend income, or "QDI"). Similarly, a contract adjustment payment portion of the mandatory preferred currently may be taxed as capital gains for eligible investors. We note that the favorable tax treatment for dividends is currently set to expire at the end of 2010. Some convertible instruments have a contingent payment feature, which allows issuers to deduct more interest than they are paying to the holder (the difference resulting in a **"*phantom income*"**) – investors, in turn, have to pay higher taxes as if they received this "phantom income." Refer to a further discussion of contingent payment later in this report.

Even "plain vanilla" cash-pay convertibles have evolved to include a variety of features, many being friendly to the issuer from a financial reporting or taxation standpoint.

Additional security provisions

Convertible securities can have a broad range of characteristics, as we have outlined in this section. We will now summarize some additional features of this class of securities. Their implications should be fully understood by investors as they can alter the investment characteristics considerably.

Change of control put provision – Various forms of *"poison puts"* are a common feature. The goal of these provisions is to allow the investor to exit a position at par in the event of mergers that are potentially harmful to the conversion option. There are several variations. Generally, poison puts are triggered by a *"Change of Control"*, in which a third party obtains a defined level of voting control of the company. Some simply provide for a cash put at par plus accrued interest; others aim to adjust the ratio so that parity will equal par. Not all mergers will qualify (e.g., most all-stock mergers do not trigger the put) and the terms of issues can be unique, thus each issue needs to be looked at individually. While the change in control put benefits out-of-the-money convertibles trading below par, for convertibles trading at-the-money or in-the-money this put option is worthless. Moreover, these convertibles get hurt the most from the loss of their option value associated with an all-cash or mostly-cash merger. Since the second half of 2004, virtually all new convertible bonds include some form of cash takeover protection as described in more detail below.

Cash takeover protection has now become embraced by investors.

Cash takeover protection provision – Since convertibles can often lose all their option value in a cash takeover, and hedged investors can experience severe losses on short positions in the underlying stock, convertible investors have demanded cash takeover protection ("CTP") from new convertible issues. We describe the three main types of cash takeover protection:

1. ***Additional Shares*** protection method is most common and calls for an *increase in the conversion ratio* over a limited period of time, based on a matrix of prices and dates. The price-date matrix contains *stock share amounts* equivalent to a hypothetical premium over parity that would be lost at a future time at a given takeover offer price.

2. ***Percent of Principal*** protection method was common at the advent of cash takeover protection language, but now is present only in some convertible bonds issued in 2004 and 2005. This protection method provides *an additional payment*, based on a matrix of prices and dates. The price-date matrix contains *principal portion amounts* equivalent to a hypothetical premium over the greater of the put price and parity that would be lost at a future time at a given takeover offer price.

The price-date matrix values for both the Additional Shares and the Percent of Principal protection methods are generally predetermined at the convertible issue date, based on spread, volatility and interest rate assumptions prevalent at that time. This protection virtually always expires by the first call date.

3. ***Market Price Premium*** protection method was the original cash takeover protection language and is now available only in a handful of outstanding convertible bonds. This method provides an additional payment equal to: (1) the average convertible price, prior to takeover announcement; minus (2) the greater of the par value of the convertible and the average conversion value of the convertible, prior to takeover announcement. That is, it is equal to the lower of the conversion premium or premium over the par value of the convertible, prior to takeover announcement. The Market Price Premium method attempts to compensate for the actual loss of premium suffered by

investors, without imposing potentially outdated spread, yield and volatility assumptions like under the Additional Shares and the Percent of Principal methods. It also generally does not have an expiration date or price limits.

Beware of very stringent non-stock portion requirements like 100% in Cash.

Cash takeover protection language includes other features besides protection type, which can affect a convertible's ability to qualify for compensation, like protection triggering actions (most require conversion), protection triggering forms of merger consideration (only cash vs. any non-stock consideration), minimum triggering non-stock portion (most allow "10% or more" non-stock), protection expiration (most expire after the first call date), and presence of a "public acquiror" clause (this clause effectively transforms a non-stock merger into a stock-for-stock merger from the convertible bondholder's view). Like other terms, cash takeover protection is subject to change with market conditions.

Contingent conversion – This feature limits a holder's ability to convert voluntarily, by requiring specific conditions. The most common form of contingent conversion requires the stock price to appreciate through a specific hurdle (usually, 120% or 130% of the conversion strike price), and stay above the hurdle for a minimum period. Some issues also allow conversion if the credit rating is downgraded below a set level, and most have conversion provisions for a change-in-control, issuer call, or significant asset distribution to stockholders.

Contingent features are an important investor consideration, as they can have material impacts on investment returns.

Contingent payment/accretion – Contingent payment or accretion allows for additional small coupon payments triggered by a certain contingency, such as the stock price appreciating through a specific hurdle. This feature usually qualifies the bond as a Contingent Payment Debt Instrument (CPDI) under IRS regulations, meaning the issuer's deductions are based on the equivalent *non-convertible* financing rate, which generally significantly exceeds the convertible's stated accretion rate. This results in "phantom income" to the taxable buyer, who has to pay higher taxes as if he received this "phantom income." The holder's tax basis in the convert gets adjusted up by the amount of "phantom income," so he will be compensated for the currently higher taxes when he disposes of the convertible. Terms of individual issues are often slightly different.

Anti-dilution provision – Most convertibles protect the investor in the event of actions on the company's part which might dilute their equity interest. These can include issues of equity at a discount (e.g. rights issues), subsidiary spin-offs, stock splits or one-time extraordinary dividends. The convertible ratio can be adjusted in such events. Most convertibles issued after the second half of 2003 have included anti-dilution protection against initiation or increase of the underlying common stock' regular dividend as well.

The so-called "Screw clause" – A common provision found in convertible prospectuses states that *"upon conversion, no adjustment will be made for interest or dividends."* In plain English this means that when you convert, you don't get the income accrued since the last payment. The main exception is upon a call-forced conversion (that is, when the issuer calls a convertible whose parity is above the call price and holders are forced to convert to get the higher value) during the period between the record and payment dates for the interest. However, that exception usually protects only the interest payment near the first call date, since after that the issuer can call the bond at any time outside of the record-to-payment period. Sometimes, convertibles are structured to look like there is no "screw clause" at the first call date, but small technicalities of the conversion rights negate such language. Therefore, investors should become fully aware of such provisions by reading the prospectus, as this can have a material impact on investment returns.

Make-whole clause – A typical convertible has call protection in the early years of the security's life. Some issues have built in the option to force conversion immediately if the stock has a strong run. Issuers paid for this privilege with the *"make-whole"* payment, which requires them to compensate the holder for this early redemption. Make-whole payments have fallen into two categories: (1) premium or (2) forgone income (coupon). A "premium" make-whole compensates the holder for the premium paid at issuance. This premium payment is stepped down over time, deducting dividends/coupons as they are paid. A "dividend/coupon" make-whole compensates the holder for the foregone future cash flows he would have received under a hard call scenario, generally three to five years. As in the case of a premium make-whole, the payment is reduced over time to reflect coupons received.

Valuation:

The valuation of convertibles can get quite complex as one weighs conversion premium against yield advantage, taking into account the remaining call protection, the credit quality of the issue and the merits of the underlying stock. For this reason, Merrill Lynch has developed a valuation model that combines the stock's volatility and dividend rate and the appropriate credit spread to derive a theoretical value for the convertible. In this way, we are able to combine the various factors that influence a convertible's value.

Valuation inputs include quantitative factors as well as other subjective metrics.

Return Profile:

The charts that follow present total return profiles for a convertible bond and a convertible preferred over a one year horizon. Generally it is not in the investor's best interest to convert early and thereby give up the additional yield and seniority over the common. However, if the common stock's dividend has grown enough since issuance to outstrip that of the convertible early conversion may be optimal. Frequently, the issuer calls the convertible at a slight premium to par once the parity value is 10-20% above the call price. This effectively "forces" the holder to convert into common stock.

Chart 12: Convertible coupon bond one-year horizon

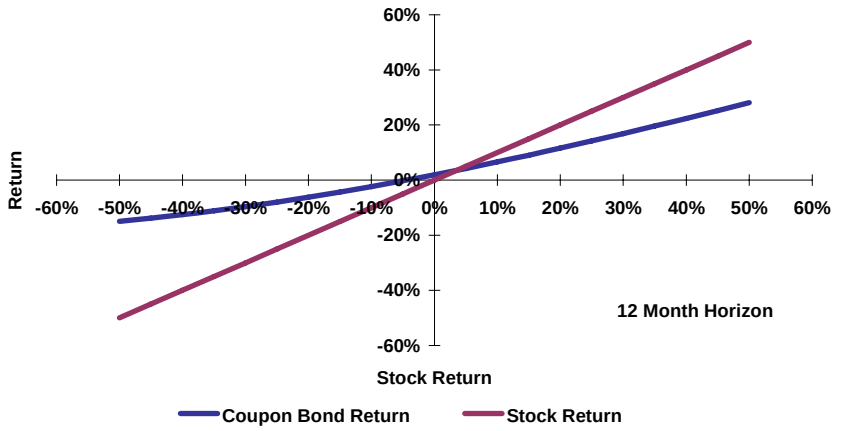
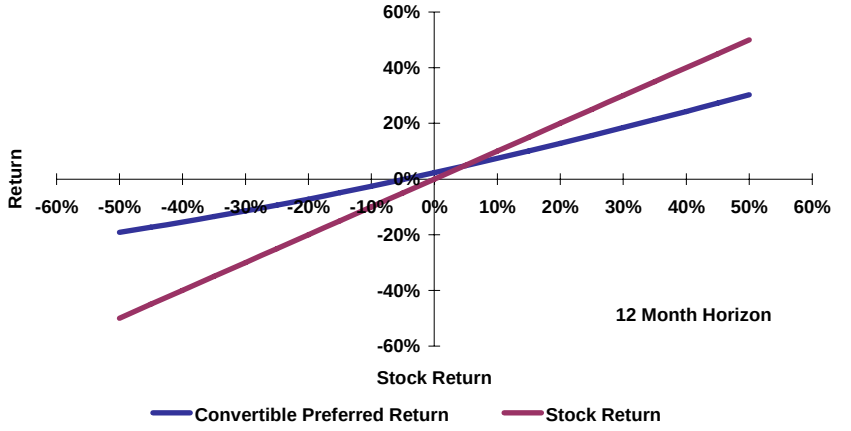


Chart 13: Convertible preferred one-year horizon



Convertible bond variations

Original issue discount convertibles – Original issue discount (OID) convertible bonds have below-market coupon levels and are offered at a steep discount to their par (or face) value, and they gradually accrete to their face value at maturity. The most extreme version of an OID is the zero coupon convertible bond (e.g., LYON), discussed later in this report. In between the zero coupon and the full coupon, almost any combination of coupon and discount is possible.

Original issue discount bonds feature below-market coupons.

The bond component of return on an OID convert comes partly from the coupon and partly from accretion of the discount. Upon conversion, the accretion is not paid, so realization of this portion of total return becomes an either/or situation. Either the stock appreciates faster than the growth in accreted value, or the accretion is paid at maturity or earlier redemption. The steeper the initial discount, the more significant this accretion factor becomes. The accretion of OID is treated as ordinary income and is taxable, just as with zero coupon bonds. Depending on the amount of accretion relative to the coupon payments, the income taxation can result in *negative cash flow* for investors.

Tax consequences can result in negative cash flow for a period of time.

Step-up convertible bonds – In the convertible security spectrum, "step-up" converts lie between coupon pay and OID bonds. The distinguishing feature of these bonds is straightforward; after a certain period of time, the initial interest rate is stepped up to a higher rate. In most cases, this is scheduled to occur at the first call date. If the stock has performed well since the convert was issued, the bond may be called to "force" conversion and the issuer never has to pay the higher coupon. If the stock has not risen sufficiently to force conversion, the higher coupon may provide an incentive to the issuer to refinance.

Step-down convertible bonds – In recent years, there have been a few convertibles issued with a coupon that steps down after a certain period of time. In most cases, this is scheduled to occur at the first call date. This allows the issuer to make the convertible more attractive for investors in the earlier years, while having an option to leave the bond outstanding after the call date at a lower interest cost.

Cash-to-zero coupon bonds (CATZ) – These are a pure hybrid between a cash-pay bond and a zero-coupon bond. CATZ are issued at a deep discount to their face value and pay a market coupon rate until the first call date (their affective accreted value stays flat equal to the at-issue price); afterwards, they

stop paying the coupon and begin accreting to their face at maturity at the same (or similar) rate as the coupon's. These structures have been used by issuers who are flush with cash at the convertible's issuance, but are not sure whether they will have enough cash to make interest payments down the road.

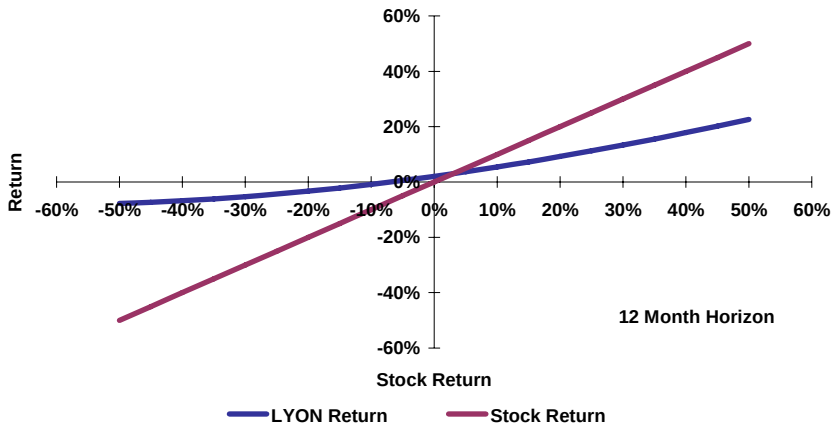
Floating-rate coupon bonds – In a low-interest environment, issuance of floaters have been popular, since it allows issuers to offer even lower than traditional coupons, while investors receive protection against future rises in interest rates. Most convertible floaters are pegged to a 3-month LIBOR rate, which is reset quarterly and coincides with coupon payment dates.

Zero-coupon bonds (LYONs-type) - most bond-like

Zero-coupon bonds offer solid downside protection with attractive short-dated put features.

To create zero-coupon LYONs-type (**L**iquid **Y**ield **O**ption **N**otes) convertibles, the standard convertible bond was redesigned in two important respects: (1) the bonds were reconfigured as deep discount zero coupon instruments; and (2) one or more relatively short-dated put options were added. Issued at a deep discount, the bonds accrue to face value and have no regular interest payment. Puts allow the holder to redeem the bonds and thereby realize accreted income prior to maturity. This provides significant downside price support and insures holders a minimum total return equal to the yield to put, provided, of course, the issuer remains solvent. As discussed previously, the accretion to face value is treated as ordinary income. For zero-coupon bonds, this results in *negative cash flow* for investors for a period of time.

Chart 14: Zero-coupon (LYONs-type) one-year horizon



Trust preferreds - more risk, yield & delta than bonds

Trust preferreds offer less downside protection than convertible bonds, though generally carry higher yields.

Convertible trust preferreds (also known as convertible TOPrS, or **T**rust **O**riginated **P**referred **S**ecurities) are essentially convertible preferred securities that pay quarterly dividends. From a holder's standpoint, these securities are essentially the same as other convertible preferreds. Major differences are (1) trust preferreds are non-perpetual (usually 30 year maturity), and (2) the income payments are treated as interest. However, trust preferreds rank above other preferreds in the capital structure (roughly equivalent to subordinated debentures). The issues offer a measure of downside support, though not as strong as traditional convertible bonds, while typically offering higher current yields.

These securities were designed to provide tax and rating advantages to the issuer through the use of a Delaware statutory business trust. The primary issuer sets up

a trust, which sells the convertible trust preferred to the public investor. The trust then uses the proceeds to purchase convertible subordinated debentures from the primary issuer with the terms virtually identical to those of the trust preferred. The coupon payments from the sub note are then used to pay the regular payments on the trust preferred. As a result of this structure, these payments are not entitled to the dividend received deduction and are treated as interest.

Since the primary issuer has sold convertible subordinated debentures to the Trust, it is entitled to deduct the coupon payments for tax purposes. However, the debentures do not appear on the primary issuer's balance sheet. Instead, the primary issuer consolidates its financial statements with those of the Trust and the Convertible TOPrS show up as a minority interest. This consolidation allows the primary issuer to receive partial equity treatment from the rating agencies.

PERCS-type mandatory preferreds - equity-like with a cap

PERCS-type mandatories offer higher current yields to compensate for greater risk and limited upside.

PERCS-type (**P**referred **E**quity **R**edemption **C**umulative **S**tock) mandatory preferreds are preferred shares that offer limited upside participation with the underlying stock (generally 30%-35% price cap) and mandatorily convert into common stock at maturity. Thus, as the diagram below points out, PERCS are among the most equity-like convertible securities and therefore offer different risk/reward tradeoffs from traditional convertible securities. Most notably, other than their yield advantage, PERCS provide no protection from a decline in the price of their underlying stock (i.e., the downside risk is in-line with the common stock). PERCS also offer higher current yields than traditional convertibles to compensate investors for this greater downside risk and limited appreciation. We note there are none of these securities currently included in our master index; however, this structure has been very popular in the synthetic convertible market.

Chart 15: PERCS-type mandatory preferred one-year horizon

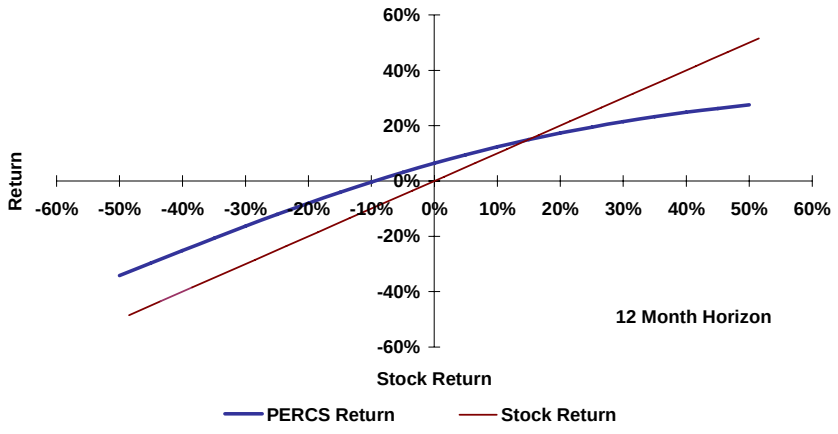
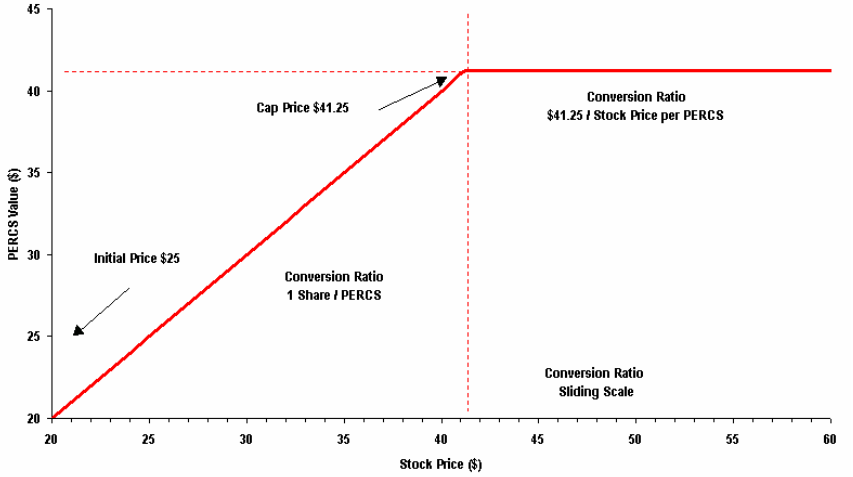


Chart 16: Hypothetical PERCS-type payoff diagram (value at maturity)



PRIDES-type mandatory preferreds – most equity-like

PRIDES-type mandatories are the most equity-like, moving almost in tandem with the underlying stock.

PRIDES-type (**P**referred **R**edeemable **I**ncreased **D**ividend **E**quity **S**ecurities) mandatory preferreds are preferred shares that are exchangeable at a premium any time (at the holder's option) into common shares, but mandatorily convert to common stock at maturity. They offer a yield advantage over the underlying common stock in exchange for limited upside participation. However, unlike PERCs-type mandatories, their upside is not capped. As the securities offer no real downside protection from declines in the stock price, they are among the most equity sensitive convertible structures. As their performance history has proven, PRIDES are designed to move almost in tandem with their underlying equities.

Chart 17: PRIDES-type mandatory preferred one-year horizon

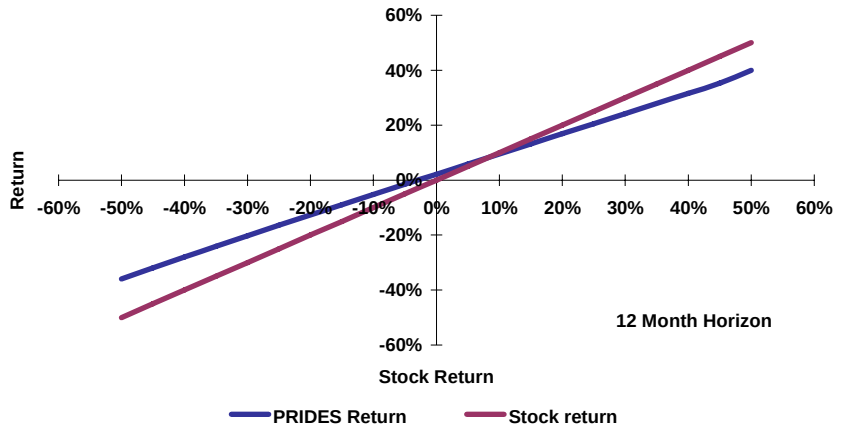
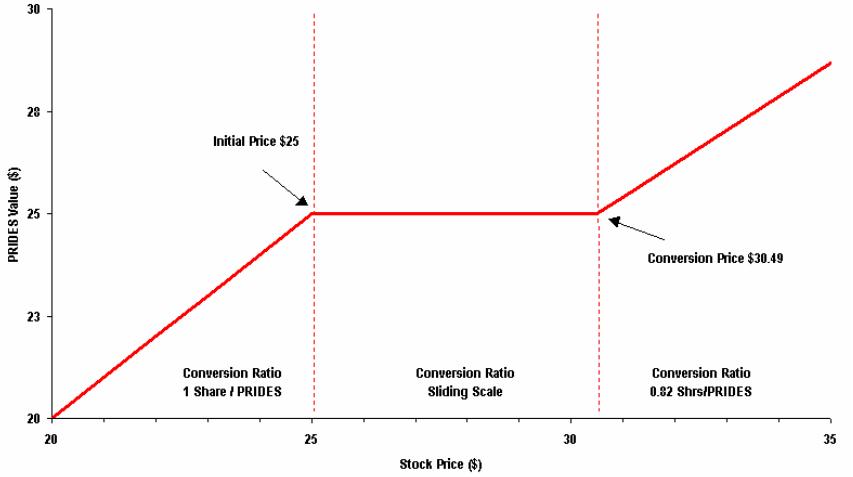


Chart 18: Hypothetical PRIDES-type payoff diagram (value at maturity)



Reverse convertibles

A reverse convertible is a synthetic convertible that gives the option of equity conversion to the issuer, not the holder. The typical structure involves issuing a note whose payoff structure is dictated by the performance of an underlying stock. Provided the stock price stays above pre-determined thresholds, the holder is expected to be paid back cash for the full par at maturity (no equity). If the stock declines, a conversion feature may be triggered, resulting in the investor receiving equity and losing a certain amount of principal. These structures carry significant differences in investment risk and return potential than traditional convertible bonds which should be fully considered by investors.

Reverse convertibles are a structured product that offers the option of conversion to the issuer, not the holder.

A typical structure

Reverse converts are generally short-term instruments with high coupons and a payoff stream that is linked to an underlying stock. Note that the linked equity is not of the issuer, but that of another reference entity. Provided the stock stays above predetermined thresholds, the holder will be paid back par at maturity and the notes will not convert to equity. If the stock declines, the convert may be triggered.

The payoff type and amount will be driven by a reference equity.

- **Basic Structure –** In a basic structure, the conversion to equity will be triggered if the underlying stock price is lower at maturity than the initial stock price at issuance. It is irrelevant how the stock moves between issuance date and maturity. If the stock at maturity closes at or above the initial stock price, the investor will receive full par in cash. If it closes below the initial price, the investor receives equity of an amount that will be less than par.

- **Knock-In Structure –** The knock-in structure is a variation of the basic structure that affords some downside stock protection. Rather than having the conversion trigger pegged only to the closing stock price at maturity, these structures also consider the magnitude of any stock declines over a period. Conversion in these structures will be triggered if the stock (1) is lower at the maturity date than the initial price and (2) has dropped below a "protection price" (usually 20%-30% from initial price) during the "period". The "period" will be set by the issuer, but can either be the full amount of time the notes are outstanding, or a more specific range of time.

Note there are several important attributes of these securities:

- **Optionality –** Unlike a traditional convertible bond, the option to convert the security into stock is held by the *issuer*. As such, the issuer has the right to pay the holder in equity as opposed to cash upon maturity, and the holder has no rights with respect to the conversion.

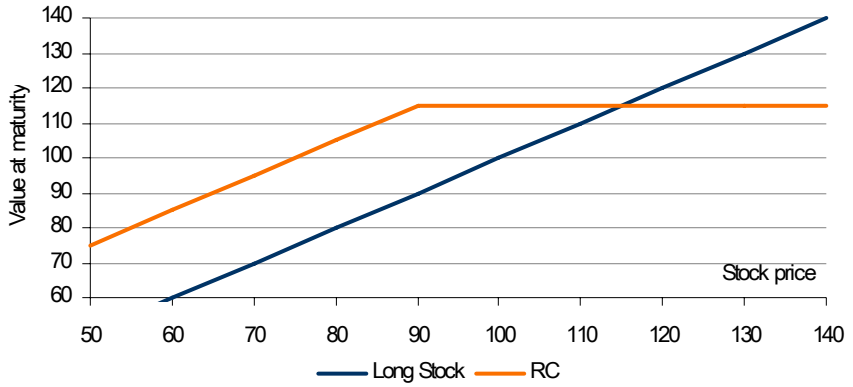
Investors should note that some or all of their principal investment could be lost.

- **Principal investment risk -** In a reverse convertible structure, the holder does not enjoy the downside protection of a bond. If the underlying stock declines, some or all of the principal investment could be lost. The holder also assumes credit risk associated with the issuer, which is separate from the underlying stock.

- **Limited upside –** Given the payoff structure, the holder's upside is capped at the coupon rate. Regardless of how well the underlying equity performs, the most the investor will receive at maturity is par.

- **High coupon; short maturity -** The securities are structured to provide high current income to holders. Typical structures carry maturity dates 12-14 months from issuance.
- **Illiquidity -** The securities are structured products that are created and issued by investment banks. Once issued, liquidity can be sparse. Accordingly, investors should intend to hold the notes until maturity.

Chart 19: Synthetic reverse convertible value at maturity
(1yr, 15% Coupon, linked to XYZ, 90% Exchange Price)



Source: Merrill Lynch Convertible Research

Table 12: Tailoring convertibles to market views

	Yield alternative	Total return	Equity alternative
Stock market view:			
Up	-	√	√
Down	√	√	-
Volatility view:			
Up	-	√	√
Down	√	√	-
Spread view:			
Tighter	√	√	-
Wider	-	√	√

Source: Merrill Lynch. Fields with a "√" denote attractive convertible types to hold under the described market scenarios.

Investment strategies

We offer four investment strategies for convertible holders. While there are many additional strategies that can be used, we provide an example of strategies that we believe are applicable in a wide range of market conditions for individual investors. In addition, the accompanying table summarizes the relative attractiveness of the three types of convertibles under a range of market scenarios.

We highlight a few of the numerous strategies that convertible investors can employ.

- Aggressive equity sensitivity: mandatory convertibles
- Total return alternatives: high gamma convertibles
- Low-risk yield: high grade short-dated puts
- Higher-risk yield: speculative grade "busted" convertibles

Aggressive equity sensitivity - mandatories

Mandatory convertibles are generally short-dated preferred stock, where an investor gives up some potential price upside in exchange for significantly higher income versus the common stock. Mandatories are the most equity sensitive type of convertible, and should be held by investors who are neutral to slightly bullish on the prospects for the equity markets.

Holding mandatories is attractive when an investor likes the long-term fundamentals of a company and wants exposure, but has less conviction regarding the stock price potential in the near- to medium-term. Accordingly, an investor would prefer to receive higher income. Buying a mandatory pays an investor to wait while the equity markets and a company's fundamentals develop.

Total return alternatives - high gamma convertibles

We look at income generating convertibles, which also pay an investor to wait, while providing downside protection.

High gamma convertibles are traditional coupon bonds and preferreds that demonstrate favorable upside/downside price sensitivity to an attractive underlying stock (refer to gamma definition in the glossary on page 32). Specifically, income-generating convertibles will pay investors to wait for an upturn in the stock. If an investor is bullish on a stock in the long-term, but believes that in the short- to medium-term it will be range-bound, an investor can swap into a higher yielding total return convertible bond or preferred. This strategy will enhance their total return while maintaining exposure to any upward movement in the stock.

This segment is also attractive if an investor wants to have exposure to a company, but wants protection on the downside, just in case the stock falls. If the shares do fall, the conversion premium on the convertible will expand leading to outperformance of the convertible over the stock on the downside. The investor could switch back to the stock once the downturn is over, in order to maximize the upward rise with the stock.

Low risk yield – high grade short dated puts

High-grade short dated puts are very defensive instruments that can provide attractive yields.

Zero coupon/OID bonds with puts within 2 years, which represent short-duration bond ideas with essentially free equity calls, are defensive instruments that can provide attractive yields.

Fixed income investors, in particular, can look for convertibles that rank pari-passu with straight debt, have a shorter maturity and yet trade at wider spreads than the corresponding straight debt.

Higher risk yield - speculative grade "busted" convertibles

Busted coupon bonds are effectively a bond alternative for investors.

Busted coupon bonds can provide substantial yields and equity-like returns in the right environment. As discussed previously, this segment effectively is viewed as a bond alternative, with little regard ascribed to the equity component. Naturally, proper credit analysis is essential in playing this spectrum of the market place with key questions to be asked in sorting out the losers from the winners being:

- Why is the convertible in its present busted state?
- How long might it take management to turn things around?
- Can the company survive until then in terms of being able to make payments on its fixed income obligations?
- Once conditions improve, will management be able to regain earnings momentum?

Convertible glossary

Breakeven:

Breakeven is synonymous with payback (see below).

Calls and Call Protection:

Most bond issuers retain the right to redeem their bonds before the maturity date. This is known as a call. However, most bonds have call protection for a period of time. This call protection enhances the convertible's attractiveness because it ensures that the income advantage the convertible offers over the common stock may be enjoyed for a definite period of time.

Issuers usually redeem convertibles in order to force conversion into their underlying stock. For this to occur, parity must be well above the call price. If the underlying stock advances rapidly, and the issue is immediately callable, a convertible may be called before its income advantage has kicked in. Issuers also call convertibles when they have an opportunity to refinance at a lower interest cost.

Call protection usually takes one of two forms. (1) unconditional call protection where the issue cannot be called prior to a certain date and, (2), conditional call protection where an issue cannot be called before a certain date unless certain conditions have been met, usually the underlying stock must trade at a premium for a specified period. Generally this is 130% (or some multiple) of the conversion price. The period of unconditional call protection is also known as the "Hard No Call" period.

Conversion Premium:

The excess of the convertible's price above parity, usually expressed as a percentage.

- $$\text{Conversion Premium} = \frac{\text{Convertible Price - Conversion Parity}}{\text{Conversion Parity}}$$

where Parity = Conversion Ratio x Current Stock Price

Conversion Price:

Set at issue, the conversion price may be calculated as follows:

- $$\text{Conversion Price} = \frac{\text{Par Value}}{\text{Conversion Ratio}}$$

Conversion Ratio:

Also set at issue, the number of shares into which each bond may be converted.

Convertible Price:

Recent price of the convertible security. Usually the offer price for convertibles that traded on the day of the data capture. For illiquid issues or issues with large bid / offer spreads, a mid-price is used.

Coupon:

Nominal income rate for convertible, expressed as a percent of par. We use the term “coupon” generically to refer to both bond coupons and preferred dividends.

Current Yield:

The annual convertible bond coupon divided by the current price.

Investment Value:

Also known as the bond floor, the level at which a straight bond with the same maturity and credit risk would trade. Investment value effectively provides a "floor" for the price of the convertible if it loses all its equity content and trades as a fixed income instrument.

Investment Value Premium:

The premium of the convertible price above investment value, expressed as a percentage.

Issue:

Convertible bonds are known by the name of the issuer, the coupon and the maturity date, e.g. Ford 4.25% 2/15/2036. Issuers may have a number of different issues outstanding.

Issuer:

The company name under which the security trades. As some bonds can be exchanged into shares of different entities, the issuer name is not always the same as the underlying security name.

Market Cap:

We use the term “market cap” to refer to the current total equity market capitalization for the underlying stock. We usually express the figure in millions of dollars.

Parity:

Also Known as Conversion Value

- Parity = Conversion Ratio X Current Stock Price

Payback:

The number of years it takes for the convertible's income advantage to offset the premium paid. In other words, payback is the premium recovery period. Although payback calculations give no credit to the time value of money, payback is still commonly used as a valuation benchmark. There are two methods of calculation:

1)

$$\text{Traditional Payback} = \frac{\frac{\%\ \text{Premium}}{1 + \%\ \text{Premium}}}{\text{Cvt Current Yield} - \frac{\text{Stock Div Yield}}{1 + \%\ \text{Premium}}}$$

where % premium is expressed in decimal form.

2)

$$\text{Dollar for Dollar Payback} = \frac{\frac{\%\ \text{Premium}}{1 + \%\ \text{Premium}}}{\text{Cvt Current Yield} - \text{Stock Div Yield}}$$

We use the dollar for dollar method in all our research reports.

Percent Cheap(Rich):

Percent cheap is the observed price’s discount to theoretical value. Theoretical value is a result from our arbitrage model, which assesses the convertible as a sum of its parts: the embedded option(s) plus the income portion. Among the assumptions used is realized underlying stock volatility, on which we impose fairly conservative issuer-specific caps, and a credit spread, which we estimate based on implied or actual credit rating from a spread matrix built on straight-bond index option-adjusted spread (OAS) values.

Screw Clause:

A prospectus provision in which a holder who voluntarily converts into common shares before the first call date forfeits income accrued since the last payment.

Share Price:

Bid price of the underlying security into which the convertible is exchangeable.

Stock Dividend Yield:

The annual yield on the common stock, i.e. the annual gross dividend / stock price.

Yields to Put and Call:

The gross redemption yields that are calculated to the date of the earliest put or call.

Yield Advantage:

Yield advantage is the simple difference between convertible current yield and stock dividend yield.

Yield to Maturity:

YTM on any security is computed by determining the interest rate that will make the present value of the cash flow from the security equal to its price. Mathematically, the yield on any security (y) is the interest rate that will make the following relationship hold:

- $P = C_1 / (1+y)^1 + C_2 / (1+y)^2 + C_3 / (1+y)^3 + \ldots\ldots + C_N / (1+y)^N$

Where

  - P = price;
  - C_t = cash flow in period t;
  - N = Number of periods

Solving for the yield (y) is an iterative procedure. The objective is to find the interest rate that will make the present value of the cash flows equal to the price.

Convertible sensitivity measures

Delta:

A measure of equity sensitivity showing the relationship between a *percent* change in stock price and corresponding expected *percent* change in convertible price; it is also known as price elasticity:

- Delta = % Change in Convert Price / % Change in Parity

$$= \frac{C_2 - C_1}{C_1} * \frac{P_1}{P_2 - P_1}$$

$$= \text{Parity Delta} * \frac{P_1}{C_1}$$

$$= \text{Parity Delta} * \frac{P_1}{P_1 * (1 + \text{Conv Prem})}$$

$$= \text{Parity Delta} * \frac{1}{1 + \text{Conv Prem}}$$

$$= \frac{\text{Parity Delta}}{1 + \text{Conv Prem}}$$

Where:

- C_1 and C_2 are beginning and ending convertible prices,
- P_1 and P_2 are beginning and ending underlying parity values,
- $C = P * (1 + \text{Conv Prem})$.

So mathematically, Delta can be approximated as the parity delta adjusted for the amount of conversion premium paid, when purchasing a convertible:

- Delta = Parity delta / 1 + conversion premium (in %)

Gamma:

This measures the rate of change of delta with respect to the underlying asset or parity. If gamma is small, delta changes only very slowly, and adjustments to keep a convertible position delta neutral need only be made relatively infrequently. However if gamma is large in absolute terms, delta is highly sensitive to movements in parity. For the mathematically inclined, gamma is a measure of convexity and is the second derivative with respect to the underlying asset.

Interest Rate Vega:

The change in price of a convertible with respect to a 1% change in the volatility of interest rates.

Parity Delta:

By its very nature the price of a convertible is sensitive to movements in the underlying equity. Parity delta is a measure of equity sensitivity showing the relationship between a *points* change in conversion parity and corresponding expected *point* change in convertible price. It is the slope of the curve that relates the convertible security price to its parity. More formally parity delta is the first derivative with respect to the underlying security:

- $\text{Parity Delta} = \frac{\text{dConvertPrice}}{\text{dParity}} = \frac{C_2 - C_1}{P_2 - P_1}$

Where:

- C_1 and C_2 are beginning and ending convertible prices,
- P_1 and P_2 are beginning and ending underlying parity values.

Alternatively, parity delta can be expressed as:

- Parity delta = points change in convertible price / 1 point change in parity

Rho: Also known as Bond Delta, this is the correlation of movements between the convertible price and interest rates.

Stock Vega: The change in price of a convertible with respect to a 1% change in the volatility of the underlying stock.

PRIDES-type mandatory preferreds glossary

Conversion Premium:

The percentage difference between the PRIDES price and Conversion Value.

$$\text{Conversion Premium} = \frac{\text{PRIDES Price}}{\text{(Stock price x Minimum conversion ratio)}} - 1$$

Conversion Value:

$$\text{Conversion Value} = \text{Stock price x Minimum conversion ratio}$$

It is important to note that this value calculation uses the lowest conversion ratio (usually in the range 0.80-0.85). The actual conversion ratio could be as high as 1 depending on the common stock price at maturity.

Conversion Price:

PRIDES are convertible into common stock at a premium price. The conversion price can be calculated as follows:

$$\text{Conversion Price} = \frac{\text{PRIDES Price}}{\text{Minimum conversion Ratio}}$$

Early Redemption:

After three years the company can call the PRIDES at pre-specified premiums to the issue price, plus accrued dividends (the call premium starts at one quarter's dividend, and amortizes to zero over the fourth year). The PRIDES will convert into common shares equal in value to the call price, or the optional conversion ratio of shares, whichever is greater.

Mandatory Conversion Ratio:

At maturity the PRIDES mandatorily converts into common stock. The number of shares received per PRIDES is determined by the stock price on the conversion date. There are three possibilities for the value of the PRIDES at maturity:

4. The common closes below the initial price. The PRIDES converts into one share of common.

5. The common closes between the initial price and the conversion price. The PRIDES converts into common according to a sliding scale designed to give the PRIDES holder common shares exactly equal in value to the initial issue price. The exact ratio is laid out in the prospectus, but will be between 1 and the minimum ratio.

6. The common price exceeds the conversion price at maturity. The PRIDES converts into the optional conversion number of common shares.

Optional Conversion Ratio:

The PRIDES holder has the right to convert into common stock at any time prior to the mandatory conversion date. A holder who converts early will receive the optional conversion ratio number of shares for each PRIDES share.

$$\text{Optional Conversion Ratio} = \frac{1}{\text{(1+ Initial Conversion Premium)}}$$

Final considerations

This report is intended to provide a basic understanding of convertible securities. Given their complexities and unique features, it is not intended to be a comprehensive resource.

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