



THE BENEFITS OF SYNTHETIC CONVERTIBLE BONDS

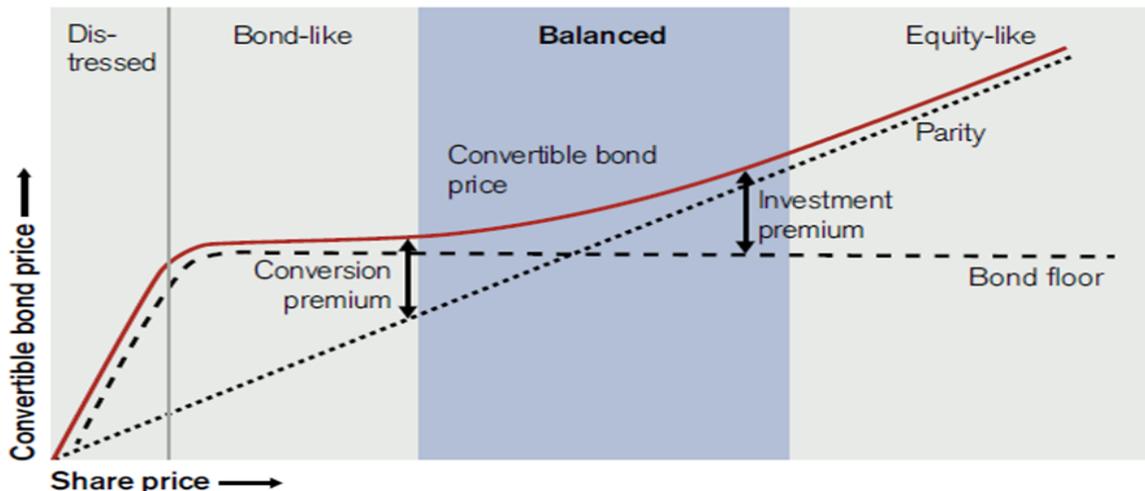
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INTRODUCTION

Convertible bond investors are often frustrated with limited investment choices or options regarding convertible securities especially related to sporadic or narrow convertible issuance, or that the universe of companies and sectors with outstanding convertibles is not larger or more diverse. 30+ years of experience has taught that there are frequently times an investor wants to purchase a convertible bond in a great company only to discover that no convertible exists. Or, a convertible exists, but it's so busted there's little equity sensitivity attached to the convertible; or conversely, it's so far in the money that it is solely an equity surrogate and provides little potential downside protection (Graph 1)(1). In either case, it's not a convertible bond in the *balanced* sense of the word and, therefore, does not afford a convertible bond's hoped for benefits of potential upside participation with bond-like characteristics. Unfortunately, not every company issues a convertible security (in fact very few do), and often pricing is unappealing in terms of equity sensitivity or potential downside protection**. **It's almost as if convertible securities choose the investor as opposed to the investor choosing the investment.** The possibility of some form of negative selection exists in this "take it or leave it" asset class.

Graph 1

Convertible Bond Illustration



Source: Credit Suisse

In the world of equities and to a lesser extent high yield, however, most investors find a stock, bond or sector they like and simply add exposure. You want technology exposure? Voila, buy Apple* "AAPL" or Intel* "INTC" common stock, or even a technology focused Exchange Traded Fund (ETF) like "SMH"* for semi-conductor, or "XHB"* for homebuilder exposure. If you like bio-techs choose from "AMGN"* , "GILD"* or "VRTX"* or

countless other bio-tech companies or ETFs. The choices in the equity markets are endless – growth, value, cyclical, large/small cap, etc. An investor has the ability to express almost any investment view with a myriad of options. High yield, although less broad sector-wise, can provide countless issuers with multiple tranches. For better or worse, the convertible market although large enough at approximately \$400B in the U.S. to support institutional investors has limitations when it comes to sector, security or ratings selection.

BUILDING A BETTER MOUSE TRAP

That's not to say convertibles are a flawed asset class. In fact, over time convertibles have historically proven resilient, been a potential provider of downside protection** in volatile markets, and have delivered, in our opinion, attractive risk-adjusted returns when viewed over multiple market cycles. They are touted as possibly providing the best of both worlds – the potential opportunity to participate when equities advance, combined with potential downside protection** if equity markets decline. Convertibles (2) have been a leading asset class YTD 2020 outpacing the S&P 500 Index and the use of convertibles may help mitigate losses related to fixed income investing when interest rates rise. The convertible mouse trap is very good and far from flawed, but maybe it could be better.

TRADITIONAL VERSUS SYNTHETIC CONVERTIBLE BONDS

Fortunately, investors and specifically institutional investors have the ability to improve on the convertible mouse trap by incorporating SYNTHETIC CONVERTIBLE BONDS into a traditional convertible bond portfolio. But, before discussing synthetic convertible bonds, let's briefly talk about traditional convertible bonds, their multitude of benefits, and some of their potential limitations. A traditional convertible bond is typically issued by company "ABC" and convertible into that same company's common stock. For example, Uber Technologies, Inc. ("UBER") recently issued a convertible bond. The convertible debt is unsecured and a subordinated obligation of Uber Technologies, Inc. It is convertible into 12.3701 shares of UBER common stock per bond. It currently has a conversion premium of about 56% (3). It has a coupon of 0% and hopefully matures at par in 12/2025 (theoretically, that's when you get your principal back**). It is impossible for an investor who purchases the convertible bonds at the issue price of par, or 100 cents on the dollar, to lose any money as long as UBER repays the investment principal at maturity. The investor may not make money, but he won't lose money either**. Obviously, if UBER cannot repay this debt, an investor could lose 100% of their investment. In exchange for this hoped for principal protection**, the investor is willing to forego some of UBER's upside if UBER's common stock appreciates. The maximum percentage upside that the investor would forego is the conversion premium of 56% mentioned earlier. For example, if UBER is up 100% (doubles) on the maturity date of 12/2025, the investor will only participate in 44% of that upside move (100% less 56%). However, the investor would participate in greater than 44% of that upside move if the move higher in UBER occurred earlier than the maturity date. Again, there is the risk of a 100% loss of the investment if UBER cannot repay the convertible debt.

LIMITATIONS OF TRADITIONAL CONVERTIBLE BONDS

■ Lack of Selection

In the above example, if an investor wants UBER equity exposure via a convertible bond, then the investor is in great shape. Maybe the investor loves UBER, but is worried about the overall equity market and is hoping for some downside protection. Or, the investor's risk tolerance is low and growth with hoped for principal protection** is desired. Or, the investor is a dedicated convertible bond manager and is prohibited from owning UBER common stock. The bottom line is if the investor wants UBER exposure he can have it via the recently issued UBER convertible bond. But what about a scenario where the investor likes ride sharing but thinks Lyft* ("LYFT") is a better option? Or, they want exposure to food delivery and believe Door Dash* ("DASH") offers a better pure play? Maybe exposure to the GIG economy is appealing but UBER does not offer desired growth and they'd rather own Upwork* ("WORK") or PayPal* ("PYPL"). Given there are no LYFT, DASH, WORK or PYPL convertible bonds in this example constrains the convertible investor's ability to genuinely express their particular investment view; and may leave no other option but for a convertible investor to own UBER convertible bonds even though they are not a perfect solution. The investor is compelled into purchasing what the convertible market has to offer as opposed

to what they would ideally like to own and could result in a less than optimal portfolio. Unfortunately, the convertible portfolio manager is handcuffed by convertible issuance and the vagaries of investment bankers.

■ Underperformance after Issuance

Compounding matters, there have been empirical and academic studies (Spiess and Affeck-Graves (4), and Lee and Loughran (5)) which conclude that convertible bond issuing firms *underperform* systemically similar risk equities or matching firms (similar firms that do not issue a convertible security) over the long term *subsequent* to a corporation *issuing a convertible security*. These studies look at returns over a 3 and 6 month, and 1 and 3 year time frame and conclude that “as a group” something changes after a company issues a convertible security. Although not totally clear why this underperformance occurs, some researchers hypothesize that it is the result of an issuer conveying unfavorable information of the issuing firm (4)(5)(6). Lee and Loughran find that convertible bond issuance firms have declining operating performance following the convertible offering, which is not the case for matching firms. The issuers underperform, on an annual basis, matching firms by 3.9% and the value-weighted index by 5.9%. Concurrent with the low returns, issuing firms experience a decline in operating performance after the convertible bond offering. This evidence appears to be consistent with firms selling convertible bonds when their stock is overvalued (Table 1) (5).

Long term under-performance of underlying equities related to convertible bond issuance is akin to the idea that companies typically issue convertibles as they begin to mature and are becoming “grown-ups” in the investment world. Often a convertible bond is the next form of capital being raised after a company goes public. At that stage, growth may be slowing from hyper to just fast, and operating performance may be starting to decelerate ever so slightly. “One possible explanation is that firms raise a large amount of capital (on average 30% of the market capitalization of equity in our sample) after experiencing a high prior year return. However, it appears that they are not able to find positive net present value projects to invest in. In other words, it is possible that the market underestimates a possible increase in free cash flow problems after issuing. This would explain both the low stock returns and poor operating performance after issuing.”(5).

Table 1 -- Convertible bond offerings and prior and subsequent stock returns by cohort year

Cohort year	Number of issuers	Means				Wealth relative	Investment grade total offerings
		Prior year returns for convertible issuers %	Prior year returns for VW index %	5-year returns for convertible issuers %	5-year returns for matching firms %		
1975	16	24.3	13.9	93.7	66.3	1.16	62.5%
1976	19	31.0	24.3	181.2	238.3	0.83	15.8%
1977	11	52.3	1.9	87.9	123.8	0.84	18.2%
1978	14	113.0	10.9	121.6	257.5	0.62	7.1%
1979	22	49.9	16.4	86.8	129.6	0.81	9.1%
1980	78	78.3	27.4	51.6	95.9	0.77	16.7%
1981	73	73.6	17.9	83.2	127.0	0.81	42.5%
1982	57	33.8	6.7	77.5	251.0	0.51	22.8%
1983	84	125.6	45.0	24.9	44.5	0.86	25.0%
1984	57	10.3	3.4	67.7	107.2	0.81	38.6%
1985	122	48.9	23.9	47.3	58.8	0.93	36.1%
1986	193	51.5	31.2	10.7	21.5	0.91	13.5%
1987	132	46.0	27.1	19.8	29.6	0.92	22.0%
1988	30	3.9	6.4	84.1	85.6	0.99	23.3%
1989	50	37.5	26.6	34.6	23.2	1.09	26.0%
1990	28	26.2	7.5	62.7	112.5	0.77	35.7%
Total	986	54.2	23.2	47.1	77.5	0.83	25.1%

Convertible bond issuers NYSE, Amex, and Nasdaq firms must be on the CRSP tapes at the time of the offering to be included in the sample. No ADRs, REITs, or closed-end funds are included in the sample. The convertible bond issue information was purchased from the Securities Data Company. Prior year returns are calculated over the year prior to the offering. The NYSE-Amex value-weighted index in the year prior to the offering had an average return of 23.2%. Matching firms are selected on the basis of size-and-BE or size-and-industry if book value is unavailable. The matching firms in the year prior to the offering had an average return of 41.2%. The wealth relatives are defined as the average gross stock return of the issuers divided by the average gross stock return for the matching firms e.g., for 1975, 1.16 = 193.7/166.3. Investment grade are bonds rated AAA to BBB- according to either the Moody's or Standard and Poor's classification.

This is not to say that purchasing recently issued convertible bonds guarantees long-term underperformance. There are many newly issued convertibles that perform fantastically; but rather suggest that “as a whole” an investor might increase their odds of success by avoiding recently issued convertibles, and instead having exposure to companies who have never issued or have not recently issued convertible securities. Indeed, the studies referenced above indicate underperformance is greater for non-rated, mid and lower-cap companies as opposed to investment grade and large cap companies (5). Unfortunately, the convertible universe is predominantly comprised of non-rated and non-investment grade companies (approximately 87.80% of the U.S. convertible bond universe as of 11/30/2020).

■ Correlation Between Equity and Credit

But, possibly the most challenging aspect of traditional convertible bond investing and a material risk is the relationship or correlation between a company’s equity price and creditworthiness. It is logical and obvious to many market participants that the higher a company’s equity price or the larger its market capitalization, the better a company’s creditworthiness on average. Conversely, as a stock’s price drops, its credit worthiness deteriorates and its credit spread will likely widen (7)(8). Unfortunately, owning convertible bonds where there is a high correlation between equity price and credit spreads adds an additional layer of risk to a traditional convertible bond.

Taking that concept one step further and getting slightly technical, a traditional convertible bond is embedded with “convexity” (see Graph 1 above). The convexity in a convertible bond is best seen in Graph 1 in the Balanced quadrant of a convertible bond’s theoretical price movement (the red line) and the concave nature of that line. According to a Man Institute March, 2019 report, “Convertible bond convexity means that during a market sell-off, valuations have an element of protection to the downside as the bond features of a convertible kick-in. Equally, this convexity means convertibles retain upside exposure when markets rally.”(9) In other words, at least theoretically, as a stock price rises, the corresponding convertible bond on *a percentage basis* participates faster and faster with any equity participation as the delta of the embedded call option in the convertible approaches one (i.e. the convertible bond starts to act more like a stock and less like a bond). Conversely, as the common stock drops, the corresponding convertible bond should ideally drop in price on *a percentage basis* slower and slower as the convertible bond approaches its investment value or bond floor (i.e., the convertible bond starts to act more like a bond and less like stock).

But what happens when there is a high correlation between equity price and credit spread? In that scenario, when the underlying common stock falls, the convertible bond may actually begin to drop in price *on a percentage basis* faster than the underlying equity given accelerating credit deterioration (that is represented by the first quadrant in Graph 1, under Distressed). The investment value or bond floor starts dropping and becomes more a mirage than reality. It becomes a moving target. In the most extreme case, if a convertible issuer’s common stock goes to zero (bankrupt), the unsecured, subordinated convertible debt may go to zero or lose a large percentage of its value. The hoped for situation of being long convexity, or the convertible bond decoupling from the underlying common stock and providing downside protection, is replaced with the less desirable situation of being short convexity, or the convertible bond dropping in price faster than the underlying common stock. Most downside protection benefits may disappear.

As discussed earlier, an investor purchases a convertible bond and is willing to forgo some upside in exchange for downside protection or “insurance”. Unfortunately, with highly correlated equity to debt relationships, there is no need to pay a premium for that insurance. Regrettably, the convertible market is littered with small to mid-cap growth companies with relatively levered balance sheets that are un-tested over multiple markets cycles and where there tends to be a high correlation between equity prices and credit worthiness (8). The high correlation of equity to credit-worthiness in the convertible universe adds one more layer of unwanted and at times *unknowing* risk for the traditional convertible bond investor (10).

A BETTER MOUSE TRAP

Fortunately, there are ways to reduce or possibly eliminate many of the aforementioned pitfalls and limitations of traditional convertible investing. First and foremost, it is important to employ competent and experienced convertible

bond portfolio managers given the complicated and esoteric nature of the asset class. In addition, it is critical to engage convertible portfolio managers who actively utilize SYNTHETIC CONVERTIBLE BONDS in addition to traditional convertible bonds as part of a holistic approach toward convertible bond portfolio construction for the reasons explained below.

WHAT IS A SYNTHETIC CONVERTIBLE BOND

In many ways, a synthetic convertible bond is very similar to a traditional convertible bond. A synthetic convertible bond has a premium, coupon and maturity date --similar to a traditional convertible bond. It offers upside participation with hoped for downside protection**. The main difference, however, is that a synthetic convertible bond is comprised of one issuing company who represents the bond, or credit portion, of the synthetic convertible bond and a separate and unrelated underlying company who represents the stock portion of the synthetic convertible bond. For example, a synthetic convertible bond might be issued by company such as Bank of America* (“BAC”) and be their credit obligation with the associated responsibility of coupon and principal payments, but be convertible into Amazon’s* (“AMZN”) common stock.

THE BENEFITS OF SYNTHETIC CONVERTIBLE BONDS

■ Flexibility of Issuer and Underlying

The benefits of the synthetic structure are many. The most obvious benefit is the decision of issuer (in the above example, Bank of America) and underlying (in the above example, Amazon). **This decision pivots 180 degrees and is borne by the convertible investor as opposed to the investment banker or convertible marketplace.** The convertible portfolio manager is no longer tethered to what convertible bonds have been issued to date or are outstanding and can make unencumbered and possibly more precise investment decisions as opposed to being forced convertible bonds by Wall Street. The idea of negative selection is greatly mitigated. An investor wants Microsoft* “MSFT” exposure; they can construct a synthetic convertible bond that delivers MSFT exposure. Maybe they want exposure to gold because they are worried about inflation or the debasement of paper currency. No problem -- construct a synthetic convertible into a gold and metals miner like Newmont Mining* “NEM”. The list is endless.

■ Improved Credit Quality

In addition, the ability to determine an issuer allows for a substantial upgrade in the credit quality of a portfolio. Synthetic convertible bonds are most often issued by investment grade corporations such as investment or commercial banks, insurance companies, or other highly-rated financial institutions. The possibility of pairing U.S. Treasuries or highly-rated U.S. government agency debt with underlying equities would allow for an even greater upgrade of the credit worthiness of a convertible bond portfolio. The highly-rated nature of synthetic convertible bonds is diametrically opposed to the lesser credit quality of the traditional convertible universe which is populated with non-rated or below investment grade companies.

■ Improved Timing – Avoiding Over-Valuation

Synthetic convertible bonds may also reduce the negative long term performance impact that researchers have demonstrated occurs after a company issues a convertible bond. Since a synthetic convertible bond is not being “issued” by the underlying company, there may not be the slowing of growth, deterioration of fundamentals, or negative messaging that accompanies a traditional convertible bond subsequent to issuance (5)(6)(7). Instead, a portfolio manager selects at what growth stage or where in a company’s life cycle they choose to invest. A portfolio manager no longer is forced to purchase a new-issue convertible bond as the common stock may be making all-time highs and possibly overvalued (5).

■ More Balanced Convertibles

Beyond the new-issue market, synthetic convertible bonds allow convertible bond investors to gain exposure to a particular company’s equity or even a sector after long or short-term underperformance either by creating a new

security or substituting a synthetic convertible bond with improved equity sensitivity for an outstanding “busted convertible” which has minimal equity sensitivity. For example, the ability to gain exposure to Exxon* (“XOM”) after 10 years of underperformance to the S&P 500 Index is available to the synthetic convertible bond portfolio manager but not the traditional convertible bond portfolio manager because XOM has not issued a convertible bond. Synthetic convertible bonds also help a portfolio manager create a more balanced portfolio that hopefully provides bona fide downside protection after a stock has risen dramatically or the market as a whole has appreciated. Another example is Tesla* (“TSLA”) convertible bonds that are trading at about 900% of par and which offer little to no downside protection given a bond floor and maturity value of approximately par. Substituting a synthetic convertible bond issued at par by a financial institution and trading closer to its bond floor will likely result in less upside, but would create a more balanced TSLA convertible bond position.

■ Reduced Equity and Credit Correlation

Importantly, synthetic convertible bonds can offer a huge advantage in terms of their correlation, or lack thereof, between equity prices and credit spreads. There is very little correlation between the synthetic convertible bond issuer and the synthetic convertible bond’s underlying common stock. As a result, the hoped for principal protection** afforded by a synthetic convertible bond can be hypothetically far superior to most traditional convertible bonds **especially when that protection is needed most – when the underlying common stock is dropping. The concept of positive convexity is more assured and ideally may allow an investor to sleep more soundly at night in particular during periods of increased volatility.** Remember, most synthetic convertible bonds are issued by highly rated financial institutions. Obviously, the credit worthiness of banks and insurance companies need to remain sound, and there may be correlations amongst financial institutions that need to be monitored, but on a comparative basis, the credit worthiness and therefore convexity of a portfolio infused with synthetic convertible bonds should be far superior to one without; and should allow a portfolio manager to trade far more actively and confidently if or when equity markets fall.

■ Diversification

Finally, adding synthetic convertible bonds to a portfolio may help lessen the often-high correlations amongst convertible bond managers. Many convertible bond portfolio managers are fishing in the same pond of traditional convertibles. Even with recent robust issuance and a U.S. market of about \$325B, investment opportunities become extremely picked over very quickly. The portfolio manager fishing in multiple ponds and constructing a portfolio of varied securities may, by definition, become less correlated with his brethren, and subsequently increase the diversification and reduce the overall risks or volatility for the institutional investor who may be allocating to multiple convertible bond managers.

CONCLUSION

In summary, synthetic convertible bonds are not used frequently by traditional convertible bond portfolio managers although they may provide countless performance enhancing and risk reducing benefits. Maybe they seem difficult to understand, or the idea behind “synthetic” or “structured” credit is frightening or daunting. They are clearly an anathema for the convertible arbitrageur who is continually trying to source “cheap” volatility given synthetic convertible bonds are by definition issued with expensive implied volatility. Maybe it’s because traditional convertible portfolio managers are content with existing convertible issuance and don’t want to look outside what the convertible market has to offer; or they are solely interested in mirroring a convertible bond index and are content on delivering relative as opposed to absolute returns.

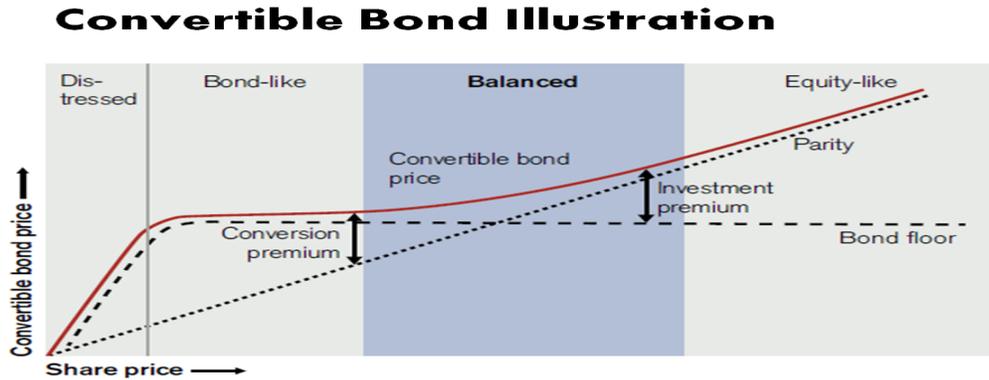
But, in the right hands, a convertible bond manager who utilizes synthetic convertible bonds may be at a discrete advantage to one that does not. The “complete” convertible portfolio manager should utilize all the investment tools at their disposable rather than those only offered as a result of the vagaries of a market or an investment bank. Synthetic convertible bonds are just one of those tools which may allow a convertible bond portfolio manager to outshine their competition and hopefully deliver more attractive risk-adjusted returns. Convertible bonds are a great mousetrap only made better by the introduction of synthetic convertible bonds to a traditional convertible bond portfolio.

Disclosures:

*All the securities mentioned above are for illustrative purposes only and do not reflect the opinions or investment recommendations of Wellesley Asset Management.

** These references to principal protection assume the bond does not default

(1) – Convertible Bond Illustration –



(2) – iShares Convertible Bond ETF -- <https://www.ishares.com/us/products/272819/ishares-convertible-bond-etf>

(3) – As of 12/14/2020

(4) – Spiess and Affleck Graves:

https://pdfs.semanticscholar.org/2deb/bf15fa89c1c710c061c64bb53c7de9ea6dac.pdf?_ga=2.144578097.567214865.1607722867-308060306.1607722867

(5) – Lee and Loughlin: <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.196.8322&rep=rep1&type=pdf>

(6) – Cheng, Visaltanachoti, Kesayan:

https://sta.uwi.edu/conferences/financeconference/Conference%20Papers/Session%2018/A%20Stock%20Market%20Reaction%20following%20Convertible%20Bond%20Issuance%20Japan_18Jan04V2.pdf

(7) -- <https://www.cfainstitute.org/en/research/cfa-digest/2016/01/what-moves-the-correlation-between-the-equity-and-credit-default-swap-markets-digest-summary>

(8) -- http://www.greta.it/credit/credit2006/poster/14_Scheicher.pdf

(9) -- <https://www.man.com/maninstitute/should-convertible-bonds-be-part-of-your-portfolio-in-2019#:~:text=Convertible%20bond%20convexity%20means%20that,upside%20exposure%20when%20markets%20rally.>

(10) – There are limited ways to hedge the correlation between equity prices and credit spreads that are too complicated for this discussion, and involve the use of Credit Default Swaps or the shorting of cash debentures. These methods are at times fraught with risk and add an additional layer of being short fixed income convexity. They are also extremely costly and can be very illiquid.

Past Performance is not indicative of future results. A direct investment in an index is not possible.

Investments in convertible securities are subject to the risks associated with both fixed-income securities and common stocks. All fixed-income securities are subject to two types of risk: credit risk and interest rate risk. Lower rated fixed-income securities are subject to greater risk of loss of income and principal than higher-rated securities. When the general level of interest rates goes up, the prices of most fixed-income securities go down. When the general level of interest rates goes down, the prices of most fixed income securities go up. In general, stock and other equity security values fluctuate, and sometimes widely fluctuate, in response to activities specific to the company as well as general market, economic and political conditions.

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