

Wellesley Asset Management
Winter 2016/2017 Publication

Convertible Bonds: A Tool for More Efficient Portfolios

Michael D. Miller, Co-Chief Investment Officer



Wellesley Asset
Management

Convertible Bond Specialists

Contents

Summary: It's Time to Give Convertible Bonds Their Due	1
I Convertible Bonds: An Introduction	1
II Digging A Little Deeper: Why Should Investors Consider Convertible Bonds?	2
Asymmetric Returns	
Better Risk Adjusted Returns	
Active Management and the Different Styles of Managing Convertible Bonds	
Specialized Managers	
III How Do Investors Use Convertible Bonds?	4
Fixed Income Allocations – Alpha and Diversification	
Equity Allocations – Lower Volatility Returns	
Alternative Allocations – Attractive, Low Correlation Returns	
IV How Convertibles Can Help Enhance Portfolio Efficiency	6
V Conclusion	8

Summary: It's Time to Give Convertible Bonds Their Due

Given their unique blend of equity and bond characteristics, convertible bonds have been a popular asset class among investors seeking improved risk-adjusted returns over traditional equity and bond portfolios. Currently, convertibles are experiencing a resurgence in popularity as investors seeking new sources of return in a low rate, moderate growth environment take a closer look at the benefits of convertible bonds. Combining equity and bond characteristics, convertible bonds provide investors with many of the attributes they seek in investments: return of capital, current income, and the potential for upside appreciation beyond what is available in regular bonds. This unique blend of features is attractive on its own; however, the most attractive characteristic of convertible bonds may be their inherent *asymmetric returns*. A

Currently, convertibles are experiencing a resurgence in popularity as investors seeking new sources of return in a low rate, moderate growth environment take a closer look at the benefits of convertible bonds.

convertible bond may participate in the upside when equity markets are strong, and the underlying equity appreciates. Conversely, during falling or volatile equity market periods when the underlying equities do not appreciate, convertible bonds tend to behave like what they in essence are: corporate bonds with coupon payments (usually) and maturity dates. This helps to provide a highly attractive risk/return profile that can often add value to an investor's portfolio. In this paper, we discuss convertible bonds and how sophisticated investors can use them to enhance their risk-adjusted returns. We also explore how a skilled manager can enhance the risk-adjusted returns of convertible bond portfolios.

I Convertible Bonds: An Introduction

Convertible bonds may be seen by some as a relatively new and complex asset class. On the contrary, convertible bonds have been issued by corporate entities for over 100 years and in fact were commonly used by railroad companies, which were the growth companies of the 1800s. Today, issuers of convertible bonds range from large cap, blue chip companies to much smaller and more speculative companies. But what exactly are convertible bonds?

As we stated in our 2012 report, "Top Ten Questions and Answers about Convertible Bonds," convertible bonds are bonds which carry the same promise of principal repayment plus interest that all corporate bonds offer. The difference lies in a convertible bond's potential ability to participate in the appreciation of the issuing company's equity shares. Convertible bonds have the features of regular corporate bonds, namely a coupon rate and a maturity date. The coupon of the convertible is typically lower than that of a regular bond; fixed income investors accept this lower coupon as a tradeoff for

the convertible bond's potential participation in the appreciation of the underlying equity. When compared to equities, however, the income component of the convertible bond is typically higher than the dividend yield of the associated common stock.

What is different are two other features, which are the conversion ratio and often an imbedded put option. The conversion ratio is determined at the time of issue and is the fixed number of shares of stock for which the bond can be exchanged. For example, a bond may be sold to investors with a conversion ratio of 50 meaning the holder of the bond can exchange the bond for 50 shares of the issuing company's underlying stock. This would imply that the underlying stock price would need to reach \$20 per share ($\$1000 \text{ par value of the bond} / 50 = \20 per share) before a holder would consider converting. Importantly, as the stock price reaches the breakeven point of \$20, the bond begins to trade in a more equity-like fashion, since a \$1 increase in the stock price above the breakeven point will result in meaningful capital appreciation of the bond price. If the stock price trades to \$25 per share, this would imply a bond price of approximately \$1250 (50 shares of stock x \$25 per share = \$1250). As we can see, the convertible bond in this example has the potential to return some attractive appreciation far above that of a normal bond.

Additionally, for convertible bonds with maturities over seven years, many, if not most issuers also include a put feature in the bond, meaning that there will be certain dates at which the holder of the bond can sell it back to the issuer at par. This feature helps to protect the bondholder from the vagaries of the markets by reducing the amount of time the holder needs to retain the bond before getting principal paid back.

II Digging A Little Deeper: Why Should Investors Consider Convertible Bonds?

Asymmetric Returns

As we have discussed, convertible bonds are a unique investment option, containing the attributes of both stocks and bonds. The unique package of features results in an attractive *asymmetric return profile*. Typically a diversified portfolio of balanced convertible bonds will partially track a rising equity market, with a simple rule of thumb being that convertibles will usually participate in about 2/3 of the upside of equity market gains. Conversely, when equity markets fall a convertible investor will normally experience a smaller percentage of the downside, typically only about 33% in the short term. This profile of 2/3 participation in a rising market but only 1/3 participation in a falling market is the expected asymmetric return of convertible bonds. It should be noted that these percentages can be enhanced by active management of a portfolio. Needless to say, there can be no guarantees that these estimated up-capture and down-capture ratios will be realized.

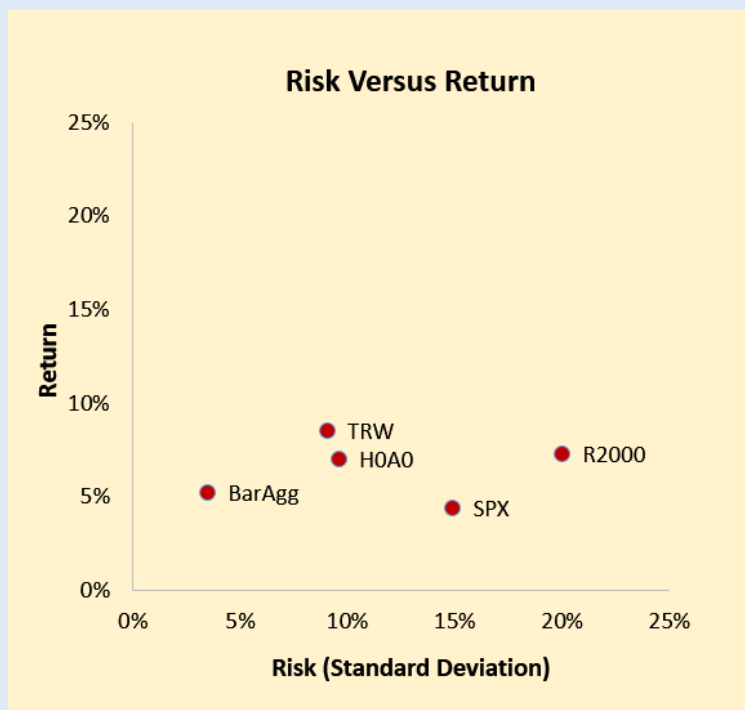
This feature of convertibles bonds is compelling as the costs of large losses during market disruptions outweigh the benefits of gains during periods of market upside. For example, simple math shows that it takes a 50% investment return to recover from a 33% loss. A "real world" instance of this is the S&P 500 Index, which suffered losses during the market crisis of 2007-2009 and took nearly 5½ years

to reach its pre-market crisis highs; the index reached 1561 in October, 2007 and did not reach that level again until March, 2013. Avoiding and minimizing losses, in our view, is therefore a key to finding superior long-term investment returns.

Better Risk Adjusted Returns

Convertible bonds also offer investors an additional benefit – long-term total returns which are typically competitive with equities and high yield bonds but often with less volatility. Risk adjusted returns are attractive, and investors can achieve return targets with a realistic expectation of reduced volatility. Exhibit 1 below tracks the risk and return performance of various popular indexes from January 1, 2000 through November 30, 2016. Convertibles have historically enjoyed long-term returns comparable to the Russell 2000 and better than the S&P 500 with less volatility risk as measured by standard deviation. Convertibles have also had similar returns to high yield bonds, an extremely attractive asset class in recent years, with less vulnerability to rising interest rates.

Exhibit 1: Risk vs Return of Various Asset Classes¹



¹Returns are for trailing annualized performance for the period January 1, 2000 – November 30, 2016. Standard deviation data is annualized for the period Jan. 1, 2000 – Nov. 30, 2016. Equity performance is based on the S&P 500 Total Return Index and the Russell 2000 Index (SPX and R2000, respectively). Balanced Convertibles are measured by the Thomson Reuters Wellesley (TRW) Index. High Yield bonds are measured by the Bank of America / Merrill Lynch H0AO Index. Investment grade bond performance is measured by the Bloomberg Barclays Aggregate Bond Index. Please see additional information regarding indexes used in the Notes section at the end of this paper.

Active Management and the Different Styles of Managing Convertible Bonds

We have established that convertible bonds offer investors a unique risk return profile which has historically generated attractive absolute and risk adjusted returns. There are typically three basic types of convertible bonds: *Balanced Convertible Bonds*, meaning those bonds trading near par; *Busted Convertible Bonds*, meaning bonds trading well below par, usually due to credit concerns and/or depressed stock prices; and *Equity-like Convertible Bonds*, which are bonds with a market price well above par. Let's discuss each in more detail.

- **Balanced convertible bonds** trade near par value and therefore offer the investor the aforementioned asymmetric return profile. If the underlying equity appreciates and conversion value exceeds par, then the investor will participate in the equity appreciation. If the underlying equity does not appreciate, the investor is holding a corporate bond and collecting interest.
- **Busted convertible bonds** have fallen far below par value, most likely due to concerns around the issuer's creditworthiness or the convertible bond's low conversion value. Busted converts can offer investors a larger yield, assuming the issuer does not default. However, participation in the equity upside – a key reason for investing in convertible bonds – is unlikely.
- **Equity-like convertible bonds** are trading far above par value because the underlying equity has appreciated significantly. However, it is important to note that this bond is now trading in lockstep with the underlying equity, and the investor is now susceptible to an equity market correction. In essence, the downside protection offered by convertible bonds has been forfeited.

Given these three basic approaches to managing convertible bonds, we believe that the evidence shows that a balanced approach results in superior long-term absolute and risk-adjusted returns. This is largely because balanced convertible portfolios will adjust along with market conditions and help to reduce investors' downside risk. Minimizing losses is an important factor in achieving superior returns over time as the so-called volatility penalty is an important drag on returns.

Specialized Managers

We also believe that specialized managers are the best way to gain exposure to this asset class. Unconstrained managers by definition are not committed to convertibles (or any other asset class for that matter) and are attempting to time their entries in and out of various markets; we believe market timing successfully over a long period of time is a lower percentage proposition.

III How Do Investors Use Convertible Bonds?

Being a hybrid instrument, convertible bonds are flexible instruments which can be used in a variety of ways by sophisticated investors. In fixed income portfolios, they are an excellent source of alpha

and provide diversification within the bond market. Many investors also use convertible bond strategies in their equity allocations to provide lower volatility equity exposure.

Fixed Income Allocations – Alpha and Diversification

It is no secret that fixed income investors have been struggling to find sources of return within the asset class, and have increasingly turned to various credit strategies. These investors may want to consider a convertible bond allocation. Convertible bonds' equity ties offer the potential for returns that most fixed income strategies cannot approach. Additionally, convertibles historically have a low correlation with other bonds and provide diversification within the asset class – an important consideration given the current low interest rate environment. Because the underlying equity has an effect on bond price, convertibles typically have about half the duration of a regular bond with the same coupon and maturity profile. Consequently, convertibles have been shown to be the best-performing fixed income security during periods of rising interest rates, when fixed income portfolios normally suffer². Moreover, the volatility of convertibles can be reduced by employing a balanced approach, which is illustrated by the TRW's standard deviation compared to that of the Bank of America/Merrill Lynch V0A0 which represents all US convertibles, excluding mandatory convertibles, small issues and bankruptcies. In this analysis, the TRW standard deviation is lower than that of commonly-utilized high yield and emerging market debt, with similar long-term returns and less exposure to interest rate fluctuations.

Consequently, convertibles have been shown to be the best-performing fixed income security during periods of rising interest rates, when fixed income portfolios normally suffer².

²Morgan Stanley research

Equity Allocations – Lower Volatility Returns

As we have seen, convertible portfolios can provide long-term returns which are competitive with those of most equity indexes, with half or less than half the standard deviation. This results in more attractive risk-adjusted returns and a more efficient profile for those investors concerned about equity volatility risk. Many investors may be concerned about equity volatility risk if they are more cautious about the asset class following a five-year bull market run. Additionally, many investors have found it difficult to rebalance portfolios by taking assets from strongly appreciating equities and moving them into poorly-performing fixed income investments, resulting in an over-allocation to equities which may require some adjustments.

The advantages of convertibles in an equity allocation are: the potential for better risk-adjusted returns, better current income, and a known timeframe for the return of principal.

Exhibit 2: Sharpe Ratio³ of Selected Equity and Bond Indexes

<u>Equity Index</u>	<u>Return</u>	<u>Std Dev</u>	<u>Sharpe Ratio</u>
S&P 500	4.41%	14.91%	0.18
Russell 2000	7.28%	20.01%	0.28
<u>Convertible Index</u>	<u>Return</u>	<u>Std Dev</u>	<u>Sharpe Ratio</u>
VOAO	5.05%	12.55%	0.27
TRW	8.55%	9.05%	0.76
<u>High Yield Index</u>	<u>Return</u>	<u>Std Dev</u>	<u>Sharpe Ratio</u>
H0A0	7.04%	9.60%	0.56

³Returns and standard deviation data are annualized for the period Jan. 1, 2000 – Nov. 30, 2016. Sharpe ratio is a commonly used method to calculate risk-adjusted performance of a stock portfolio. The ratio determines whether a portfolio's profit can be attributed to correct thinking or high risk. The higher the ratio, the better the portfolio has performed after being adjusted for risk. The equation is Sharpe Ratio = (Fund return - risk free return)/ standard deviation. For this exercise we use the average T-Bill rate for the time period examined as the risk-free rate, which is 190 bps.

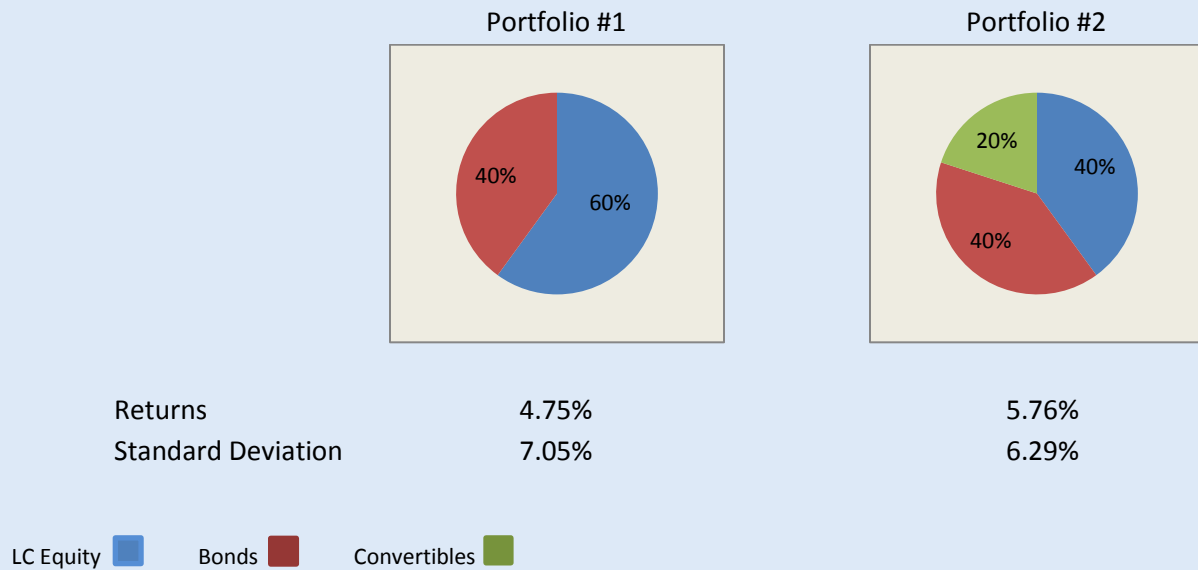
Alternative Allocations – Attractive, Low Correlation Returns

Convertibles are also an option in alternative allocations as they provide the risk-adjusted returns investors seek in more exotic allocations while having correlations of 0.75 and 0.11 to the S&P 500 and Bloomberg Barclays US Aggregate Bond Index respectively. Convertibles are often seen by some as a “natural alternative” due to their hybrid nature and characteristic automatic rebalancing when market conditions change.

IV How Convertibles Can Help Enhance Portfolio Efficiency

The following illustrations show how an allocation to convertible bonds can increase portfolio efficiency and help investors achieve long-term investment goals. The first portfolio is the classic “60/40” portfolio of stocks and investment grade bonds, represented by the S&P 500 and the Bloomberg Barclays Aggregate Indexes. The second portfolio is a 40/40/20 portfolio of stocks, bonds, and 20% allocated to convertible bonds via the TRW Index. Reduced volatility, better returns, and improved portfolio efficiency are all achieved in this example by making a minor allocation to convertible bonds.

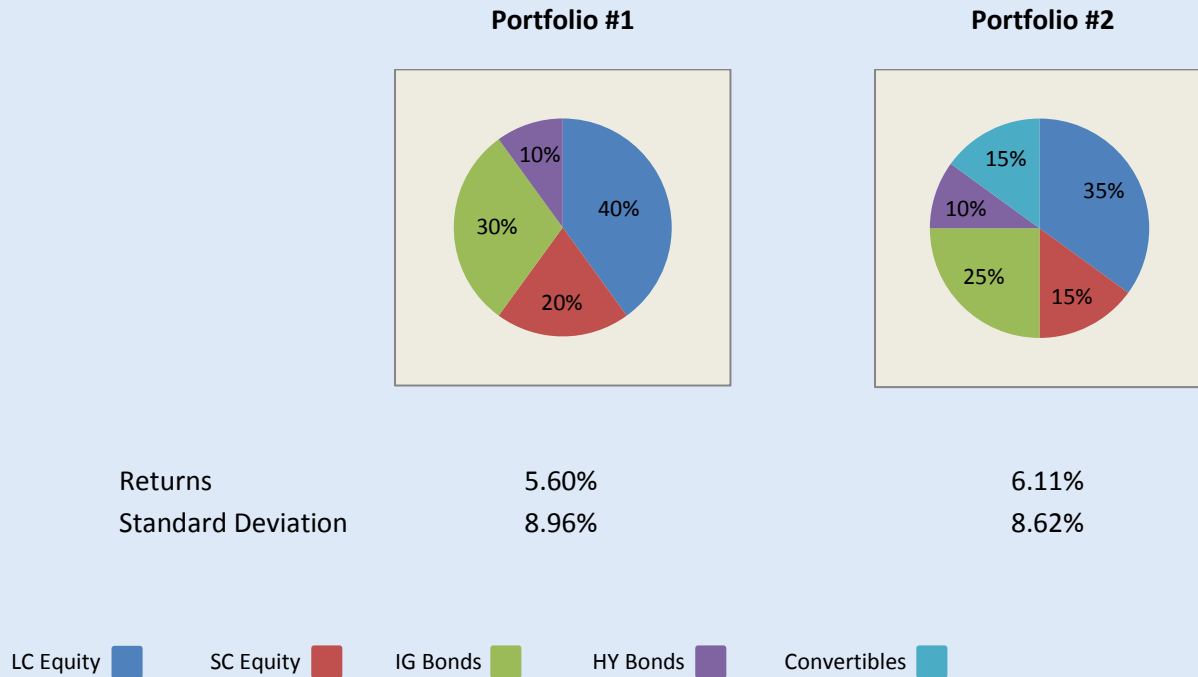
Exhibit 3: Moderate Growth Portfolios⁴



⁴Assumes trailing annualized returns and standard deviation for the time period Jan. 1, 2000 – Nov. 30, 2016.

In this example, adding a convertible bond strategy into the allocation resulted in a 21% increase in return while volatility risk actually *decreased*. The efficiency of this portfolio has improved significantly, contrary to the belief that more risk must be taken to achieve higher returns. This is a relatively simplistic example, so let's take a look at a more diverse Aggressive Growth Portfolio containing Small Cap Equity exposure along with the S&P 500 exposure of the previous example. We are also adding in a 10% allocation to high yield bonds to enhance the returns of the bond allocation.

Exhibit 4: Aggressive Growth Portfolios⁴



⁴Assumes trailing annualized returns and standard deviation for the time period Jan. 1, 2000 – Nov. 30, 2016.

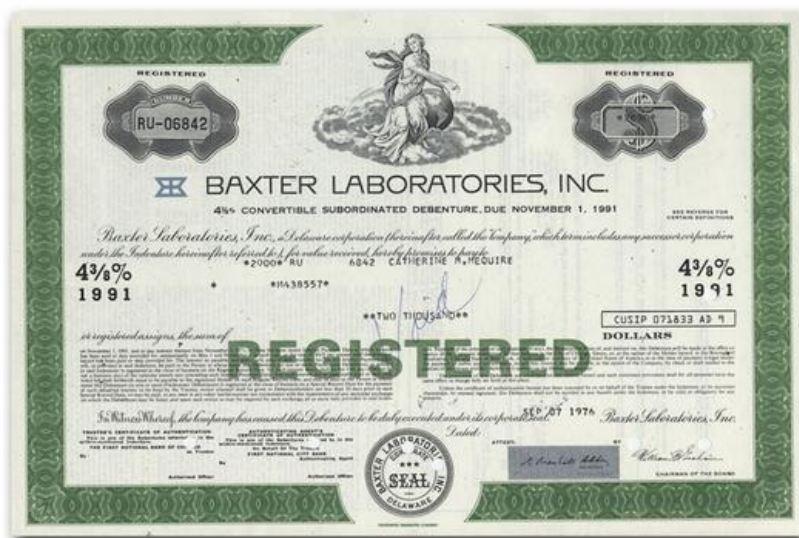
As we can see, adding in small cap equity and high yield exposure did in fact improve the rate of Portfolio #1's return over time, along with an (expected) increase in the volatility risk. We then added in a 15% allocation to convertible bonds, reducing the investment grade fixed income, large cap equity, and small cap equity allocations to make room. The addition of convertibles to Portfolio #2 resulted in a higher total return along with a decrease in the volatility risk. Again, the addition of the balanced convertible allocation resulted in a more efficient portfolio.

V Conclusion

Convertible bonds are a hybrid security and offer sophisticated investors an attractive tool when seeking to optimize risk-adjusted returns. Convertibles over the long term have provided superior returns to most other fixed income and equity indexes; and on a risk-adjusted basis, the relative returns

are even more impressive. Convertibles are also one of the few fixed income instruments with expected long-term returns which can approximate that of equities.

Importantly, convertibles are an asset class which can be used in all market conditions. This is because convertibles can behave like equities when market conditions are favorable; alternately, they can behave like bonds when the investor needs the protection of a bond allocation. However, we have noted that active management can be used to enhance the returns of convertible bonds, and believe that convertibles offer the best risk/return profile when managed as a balanced portfolio which avoids the dual “tails” of extreme equity-like characteristics at one end of the spectrum, and distressed credit qualities on the other.



Pictured above is a convertible bond issued in 1976 by Baxter Laboratories. It matured in 1991, the year Wellesley Asset Management was founded.

Legal Disclosures

Past performance is no guarantee of future results. This presentation is meant for broad discussion purposes only, and is not intended as a recommendation to buy or sell any security. The information presented herein has been developed internally and/or obtained from sources believed to be reliable; however, Wellesley Asset Management does not guarantee the accuracy, adequacy, or completeness of such information.

No representation is made that the investor will obtain similar results to those shown. The performance presented may not be representative of investments held in any one client account or performance realized in any one client account. An investor's actual performance may differ from the performance presented due to timing of investment, contributions and withdrawals. Performance does not reflect the effects of taxation, which result in lower returns to taxable investors.

An investment in convertible securities involves a risk of loss. The value of an investment in convertible securities may decrease as well as increase.

Notes on the Indexes Referenced in this Paper

TRW is the Thomson Reuters Wellesley Absolute Convertible Bond Index ("TRW"). The index is a joint venture between Thomson Reuters and Wellesley Asset Management (WAM). TRW is intended to represent a strategy with the goals of absolute returns and outperforming both equities and fixed income over complete market cycles deploying convertible bonds. There can be no assurance that TRW will achieve its goals. WAM has discretion over the selection of index constituents and their weighting in the index. The S&P 500 Total Return Index is a cap-weighted index of 500 common stocks regarded as a leading proxy for the US stock market; the Bank of America / Merrill Lynch VOA0 Index represents all US convertibles, excluding mandatory convertibles, small issues and bankruptcies; the Bloomberg Barclays Aggregate Bond Index represents most investment grade bonds traded in the United States. The Bank of America / Merrill Lynch HOA0 represents most US High Yield Bonds. Index returns assume reinvestment of all distributions and do not reflect the effect of fees, transaction costs or taxes. A direct investment in an index is not possible.



Wellesley Asset Management, Inc.

20 William Street, Wellesley, MA 02481

781-416-4000 Fax: 781-237-6163

www.WellesleyAssetManagement.com