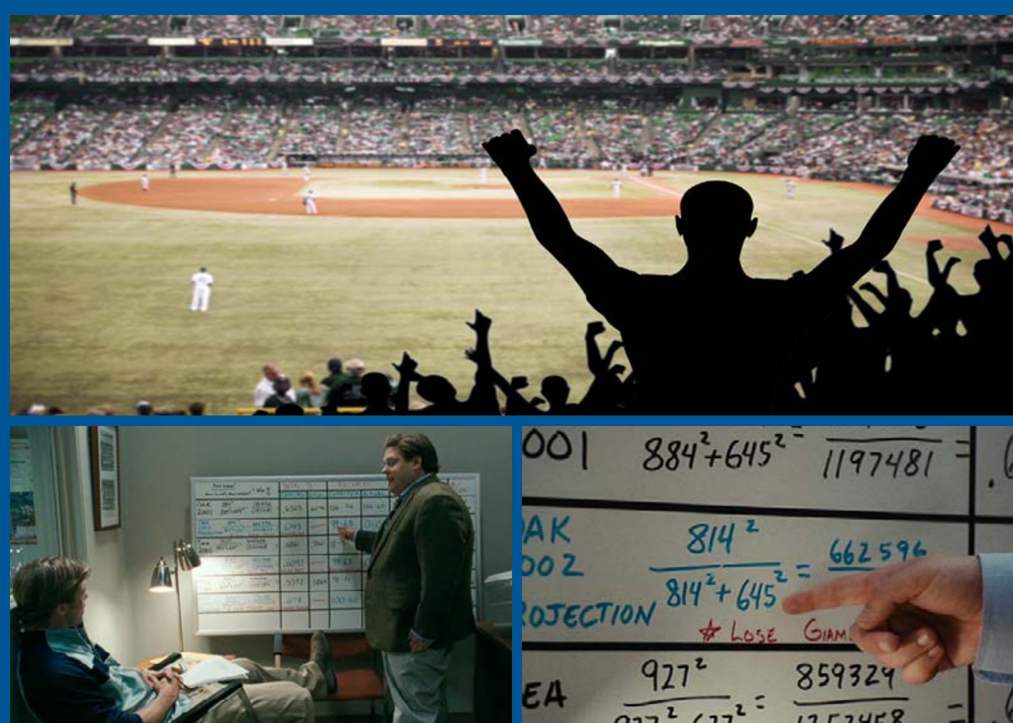
ATLANTA CAPITAL
INVESTMENT MANAGERS

The MONEYBALL Approach to Bond Manager Evaluation

September 2013



- The central premise of *Moneyball: The Art of Winning an Unfair Game* is that conventional wisdom about which statistics are useful in evaluating professional baseball players is often wrong.
- While the purpose of a bond portfolio is to serve as a 'hedge' against falling equity prices, the relentless pursuit of alpha by bond managers has created hidden risks at the total fund level—risks that only more unconventional measures can expose.
- Unconventional measures like on-base percentage proved to be more effective in gauging player potential than more common and popular measures such as batting average and runs batted in.
- Our research concludes that traditional statistics like 'alpha' and 'batting average' are less effective in gauging bond manager value than more unconventional statistics that measure bond manager performance in relation to stock market conditions.

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Now, more than ever, plan sponsors should keep a watchful eye on downside risk. While many bond managers are reaching for yield to mitigate the impact of rising interest rates, they may well be placing their bets in financial instruments that behave more like stocks than bonds.

Executive Summary

The combination of low yields and the fear of rising interest rates has caused plan sponsors to lower their return expectations for bonds and look towards their active fixed income managers for more alpha generation. While the traditional style of bond investing centered on preserving capital and serving as a 'hedge' to falling equity prices, the fact is, the typical bond manager has no qualms about taking on more equity-like risk in an attempt to boost performance. Today, benchmark-beaters are in demand and **bond managers have responded by paying more attention to their portfolio's return potential rather than focusing on risk control.**

Although many bond managers are increasingly pursuing lower credit quality issues like non-investment grade corporates, convertibles and bank loans to improve the expected returns of their portfolios, our research indicates that these securities are unlikely to offer the same diversification benefits as traditional, high-quality bonds. **We believe high-quality bonds remain the best diversifier to equity risk** and **their low correlations to stocks matters more than their potential returns.**

The relentless pursuit of alpha by bond managers is creating hidden risks at the total fund level—risks that only more unconventional measures can expose. This paper provides evidence that traditional statistics like 'alpha' and 'batting average' are less effective in gauging bond manager value than a more unconventional statistic such as **'on-base percentage.'** This metric **proved to be more insightful because it measures a bond manager's ability to serve as an effective counterweight to equity risk.**

"Hedging" Stocks with High-Quality Bonds

The -2.4% loss generated by the Barclays Aggregate Index (Aggregate) in the first half of 2013 is weighing heavily on the minds of plan sponsors. Many bond market pundits are proclaiming that we are at the crossroads, that low yields and rising rates will wreak 'havoc' and 'devastation' on bond portfolios across America. Their solution: broaden your core bond portfolio to include higher yielding alternatives that are less sensitive to changes in interest rates.

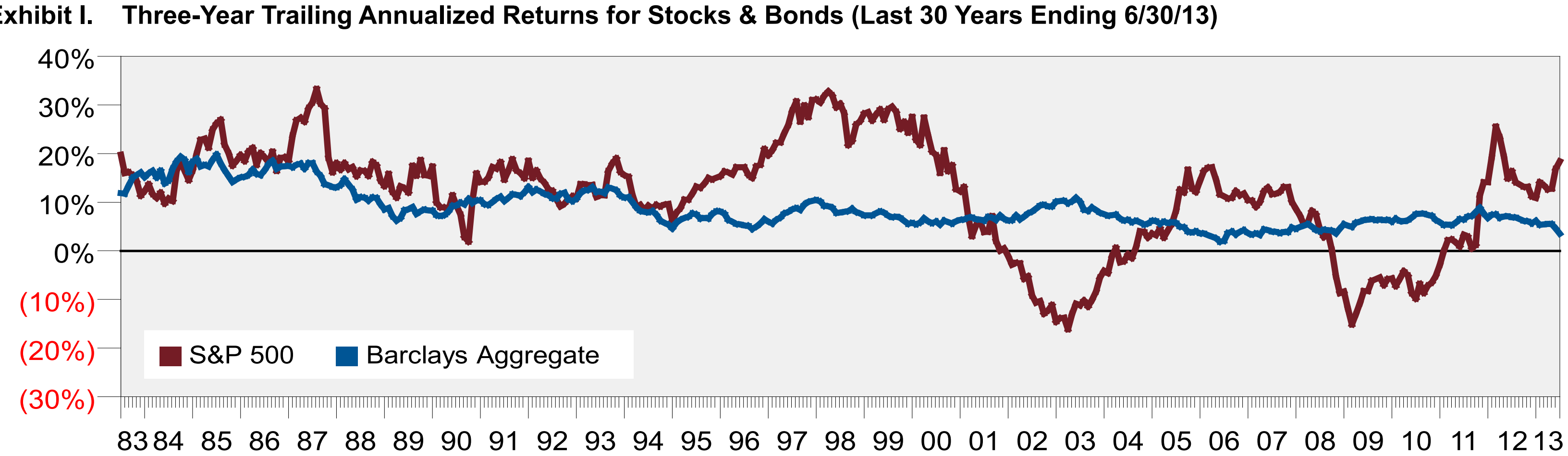
Although today's low yields may provide less of a cushion for bond price volatility, **a portfolio of high-quality bonds should remain as a plan sponsor's low-risk "anchor to windward."** Indeed, losses are more probable, but the credit and liquidity risks associated with reaching for yield far outweigh the potential losses derived from a spike in interest rates. For example, the duration (a measure of price sensitivity to changes in interest rates) of the Aggregate is five and one-half years. If rates were to rise one percent, the price of the index would fall 5.5%. And after adding back the 2.4% yield, investors would incur about a 3.1% loss over a 12-month period. Even though a rise in rates could result in a loss, the Aggregate's return would likely be much better than the losses experienced in previous periods of market turmoil by more credit sensitive fixed income sectors, as well as equities.

Exhibit I plots the three-year trailing annualized returns for stocks and bonds since the 1980s, and provides an important perspective regarding the role of a core bond portfolio. As represented by the Aggregate, the industry standard benchmark for investment-grade debt, a portfolio of high-quality bonds has served plan sponsors well. Over the last 30 years, high-quality issues have provided a steady return stream, especially when riskier assets like stocks plunged in the severe bear markets of 2000–2002, and 2008.

Perhaps the broad acceptance of reaching for yield is driven by the fact that investors haven't experienced a bear market in bonds since 1999, when the Aggregate fell 0.8%. Even when rates spiked by 200 basis points in 1994, bonds only fell 2.9%. Granted, the Aggregate's higher yield at the time provided more of a cushion, but we are still talking about single-digit losses.

With interest rates starting from such a low point, we agree that plan sponsors shouldn't expect the same level of returns to which they have grown accustomed. However, fleeing high-quality bonds in anticipation of rising interest rates is imprudent. **High-quality issues are intended to serve as a 'hedge' to equities, a role often overlooked and underappreciated, until needed.**

Exhibit I. Three-Year Trailing Annualized Returns for Stocks & Bonds (Last 30 Years Ending 6/30/13)



Source: Bloomberg.

Exhibit II. Correlation Table of Various Bond Sectors (Last 10 Years Ending 6/30/13)

	Treasury	Agency	MBS	Muni	Corporate	ABS	CMBS	High Yield	Converts	Bank Loans
Treasury	1.00	0.94	0.83	0.42	0.42	(0.16)	(0.22)	(0.51)	(0.55)	(0.65)
S&P 500	(0.58)	(0.46)	(0.43)	0.06	0.21	0.35	0.68	0.77	0.84	0.65

More Interest Rate Risk ⟵⟶ More Credit Risk

See definitions and disclosures.

Diversification Benefits Depend on Perspective

The fixed income market has evolved considerably over the past three decades, from the complexity of financial instruments to the styles of active management. In our opinion, the **most important development** has been the **increase in the reliance on credit risk to add value.** But have plan sponsors benefited?

Managers that invest in non-benchmark securities and climb down the credit quality ladder often produce attractive results. Their approach works just fine up until a financial crisis or economic downturn. Remember the Asian currency crisis, Russian debt default, Long Term Capital Management, 9/11, Enron, Bear Stearns, and Lehman Brothers? During the subprime crisis of 2008, many lower credit quality portfolios produced negative returns when the Aggregate produced positive results. So, at a time when many plan sponsors were looking to their bond portfolios as an effective counterweight to declining equities, they received disappointing results in their bond portfolio as well.

Today, many bond managers are justifying greater exposure to bonds with above-market yields because of their lower correlations to other fixed income sectors. In our opinion, these securities are unlikely to offer the same diversification benefits as traditional, high-quality issues. Exhibit II shows the correlations of various bond sectors relative to both US Treasuries and the S&P 500 Index. While the more credit oriented instruments are negatively correlated with US Treasuries, they are positively correlated with equities. Put simply, they deliver results at approximately the same time when stocks are in favor. **Plan sponsors should question whether adding credit risk will "enhance" total portfolio diversification or cause their bonds to behave more like stocks.**

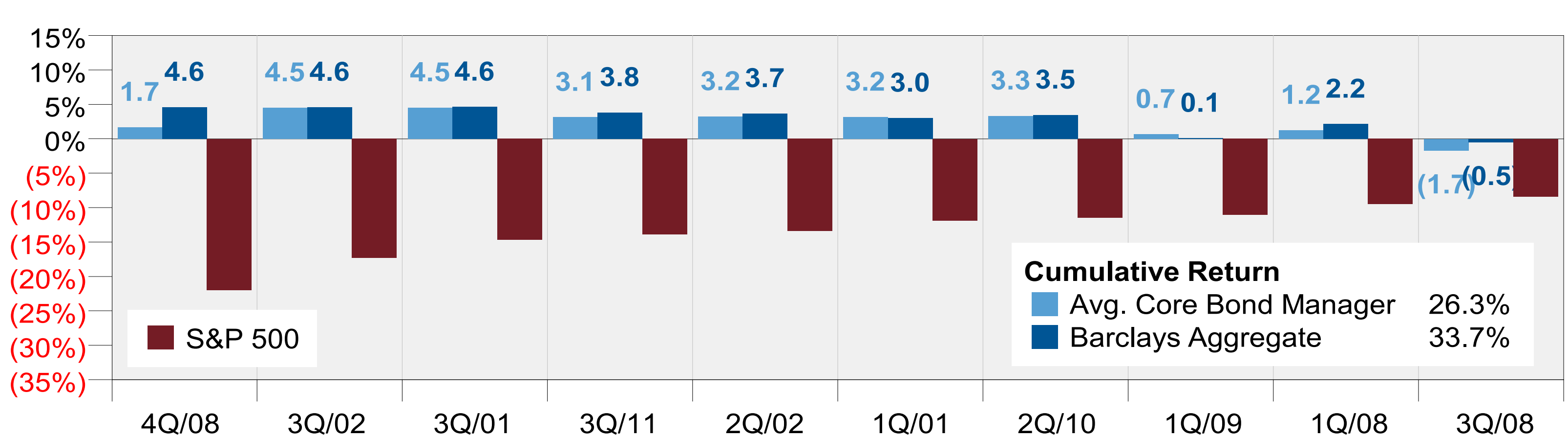
The Cost of Credit

Our research suggests that many plan sponsors are likely to be disappointed with their core bond portfolio the next time fear grips the investment community and stock prices head south. The reason: **the addition of credit risk** in bond portfolios **has reduced their effectiveness to serve as a 'buffer' against falling equity prices.**

Exhibit III shows the ten worst quarters of performance for the S&P 500 index, ranked in order of percent decline, since 2000. The total return of the average core bond manager and the Barclays Aggregate are plotted for comparison. The time period selected was based upon the inclusion of two equity bear markets, minimizing the potential bias of a single peak-to-trough period skewing the results. The average manager lagged the Aggregate during eight of the 10 quarters, and underperformed by 740 basis points on a cumulative basis. Even during the 2000 – 2002 bear market, bond managers posted disappointing results.

During these sharp downdrafts in equity prices, the typical core fixed income manager captured less than 80% of bond market performance. In our opinion, the magnitude of this relative underperformance seems unreasonable for a core bond portfolio. **These types of results seem enough to prompt plan sponsors to reverse the trend of loading up on credit** and other securities with above-market yields, **but so far, the trend is continuing.** Plan sponsors and investment managers alike seem to be paying more attention to return potential rather than focusing on risk control and the relative safety and security of their capital. **As investors continue to reach for yield, we believe the effectiveness of a plan sponsor's long-term asset allocation will diminish.**

Exhibit III. Ten Worst Quarters for the S&P 500 Index (1Q00 – 2Q13)



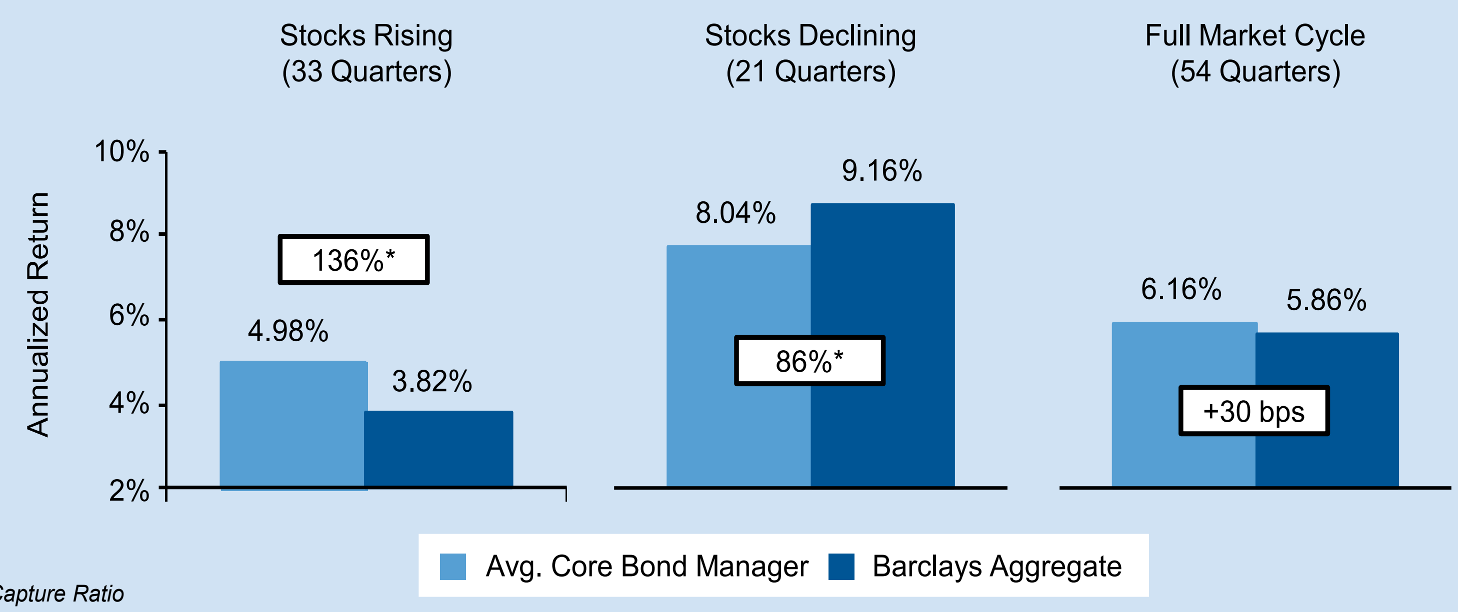
Source: Bloomberg and national consulting firm.

Tracking Down the Source of Alpha

In order to understand the profound implications of credit risk in core bond portfolios, it is important to view bond manager performance in relation to stock market conditions. Even though the average core bond manager has successfully added value over time, **rising stock prices appear to be a significant determinant to bond manager outperformance.**

Exhibit IV presents the annualized results of the typical core bond manager in comparison to the Aggregate during rising, falling and full stock market cycles. Since 2000, the average manager has successfully added value, beating the Aggregate by 30 basis points. However, bond managers appear to have systematically taken on equity-like risk as a means of delivering relative outperformance, riding high when stocks are in vogue but faltering when stocks are in decline. For example, the typical fixed income manager captured 136% of bond market performance when the stock market was rising, while generating only 86% when the stock market was declining. The upshot is that **bond manager performance appears to be highly sensitive to stock market fluctuations.** If plan sponsors look to their bond portfolios as a shield against stock market volatility, they may be gravely disappointed.

Exhibit IV. Performance Decomposition (1Q00 – 2Q13)
Core Bond Manager Returns Relative to Stock Market Conditions



*Capture Ratio

See definitions and disclosures.

What's a Plan Sponsor to Do?

Plan sponsors need to dig into their bond portfolios to understand all of the places their managers are reaching for yield. To be sure, beating the benchmark is a highly desirable characteristic. But, the relentless pursuit of alpha by bond managers has created hidden risks at the total fund level—risks that only more unconventional measures can expose. Based on our research, traditional statistics like 'alpha' and 'batting average' are ineffective in gauging a bond manager's value to a total fund. What is needed is an alternative approach to bond manager performance evaluation that examines the following:

- How has the portfolio behaved during **rising** and **falling stock market cycles?**
- Is the bond manager more likely to outperform when **stocks beat bonds** or **bonds beat stocks?**
- How has the portfolio performed during **extreme stock market conditions** like the ten best and worst quarters for the S&P 500?

We believe the bond market is in the midst of a paradigm shift and plan sponsors should keep a watchful eye on downside risk. **If evaluating a total bond portfolio in relation to stock market conditions reveals that much of the 'alpha' has come from elevated credit risk,** a plan sponsor should **consider the addition of a high-quality bond manager to their portfolio line-up.**

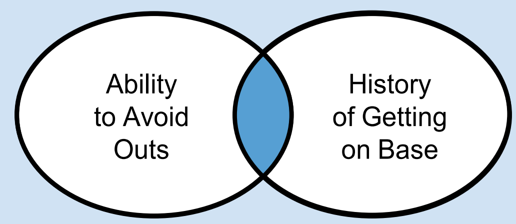
We don't know when the next financial crisis will occur. Neither do most investors. All we know is that stock market corrections are an inevitable part of investing and are somewhat regular events. In fact, a look back at the last three decades shows that stock prices were in decline nearly 1 out of every 3 quarters. Sadly, in their relentless pursuit of alpha, most core bond managers have greatly reduced their effectiveness to serve as a 'buffer' against falling equity prices.

While the foundation of asset allocation principles rests on a fixed income portfolio's ability to serve as a buffer against falling equity prices, the bulk of investors no longer view their bond portfolios through a "capital preservation" lens.

The Moneyball Approach to Measuring Bond Manager Value
Debunking the "Batting Average" Myth

The central premise of *Moneyball: The Art of Winning an Unfair Game* is that conventional wisdom about which statistics are useful in evaluating professional baseball players is often wrong. The Oakland Athletics under general manager Billy Beane used unconventional statistics—called sabermetrics—to assemble a winning team despite having limited resources to compensate players. Unconventional measures like on-base percentage proved to be much more effective in gauging player potential than more common and popular measures such as batting average and runs batted in.

Exhibit V. Criteria to Determine Player Value



All too often, the best bond managers are considered to be those who possess the highest batting average, i.e., the percent of time a bond manager's return meets or exceeds the Barclays Aggregate. This brings about a question: *If the objective of a core bond manager is to serve as an effective 'hedge' against falling equity prices, is batting average really as important as it is made out to be?*

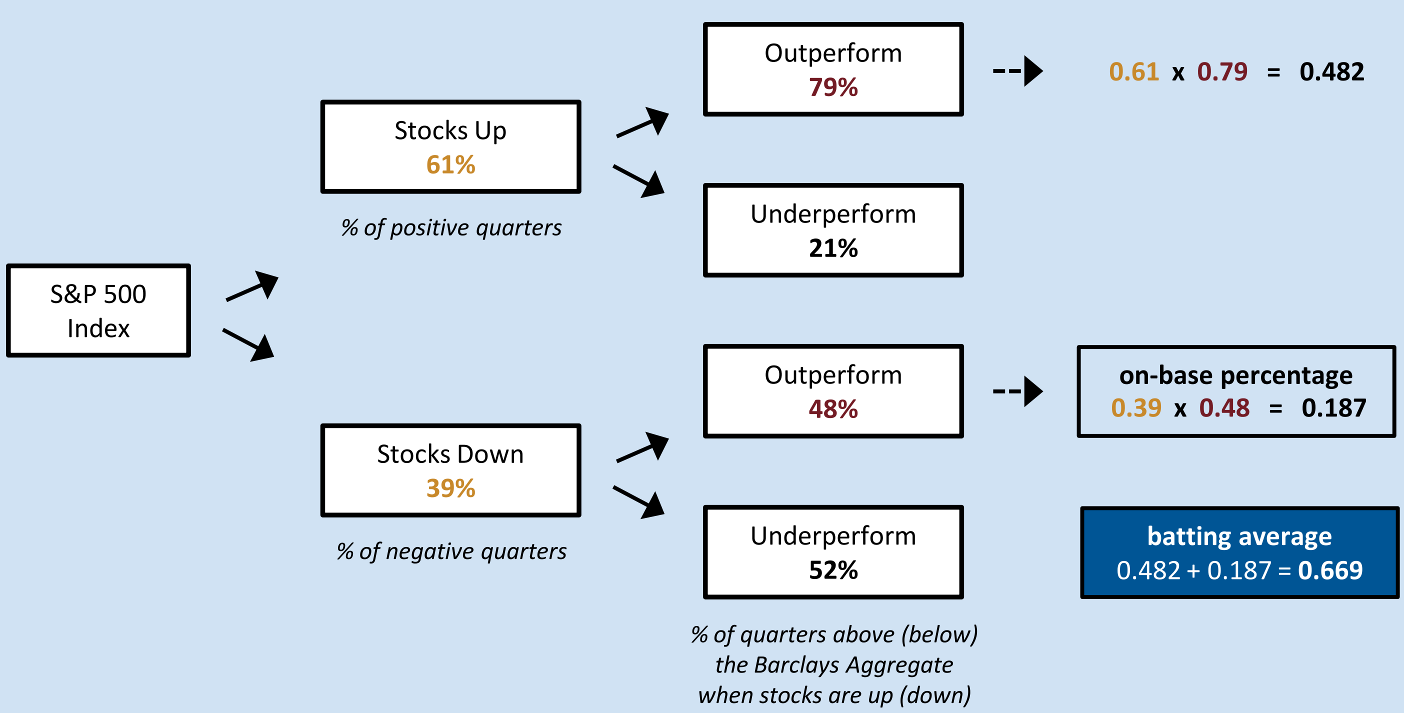
The problem with batting average is that it completely ignores the capital market conditions present during the performance period. For example, stock prices rise more often than they fall. Bond managers understand that they can simply increase the likelihood of outperforming the Aggregate by adding equity-like risk to their portfolios. Many managers load up on credit risk in the hopes of improving their batting averages and attracting new clients.

Exhibit V illustrates Billy Beane's two fundamental principles for winning baseball games; don't get out, and get on base so you can keep scoring runs. *Outperforming* the Aggregate during a downdraft in stock prices is similar to avoiding an out in baseball. *Consistently* adding value during these same periods is comparable to a high on-base percentage. We believe on-base percentage is a far more effective measure for gauging bond manager value than batting average because it measures a bond manager's ability to serve as an effective counterweight to equity risk. On-base percentage is calculated by counting the number of quarters of outperformance when stock prices are falling divided by the total number of observations.

Exhibit VI shows that **bond managers with high batting averages frequently carry low on-base percentages** because **they fail to add value during stock market corrections.** The diagram below separates the typical core bond manager's batting average into paths dependent upon rising or falling stock prices. Hence, batting average is the sum of the two "outperform" paths. Since 2000, the typical core bond manager has hit .669, handsomely beating the Aggregate nearly 67% of all quarters. However, during stock price declines, the manager outperformed only 48% of the quarters. If we combine the 39% occurrence of falling stock prices with the manager's 48% record of beating the index we end up with an on-base average of .187. When comparing the manager's batting average (.669) to on-base percentage (.187), a huge difference is discovered! Despite sporting an impressive batting average, the manager isn't very effective at buffering the portfolio against stock market declines.

Focusing just on batting average may cause plan sponsors to overlook managers with the greatest ability to enhance the results of the total fund. Just like in baseball, while batting averages, stolen bases and home run totals are easy to find, on-base percentage takes a little more digging.

Exhibit VI. On-Base Percentage vs. Batting Average (1Q00 – 2Q13)
Average Core Bond Manager Return Relative to Barclays Aggregate



Source: Bloomberg and national consulting firm.

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Important Additional Information and Disclosure

Exhibit II. The Barclays Capital U.S. Treasury Index **(Treasury)** is part of Barclays global family of government bonds indices. The index measures the performance of the U.S. Treasury bond market, using market capitalization weighting and a standard rule based inclusion methodology. The Barclays Capital U.S. Agency Index **(Agency)** measures the performance of the agency sector of the U.S. government bond market and is comprised of investment-grade U.S. dollar-denominated debentures issued by government and government-related agencies, including the Federal National Mortgage Association ("FNMA" or "Fannie Mae"). The Index includes both callable and non-callable agency securities that are publicly-issued by U.S. government agencies, quasi-federal corporations, and corporate and foreign debt guaranteed by the U.S. government. The Barclays Capital U.S. Mortgage-Backed Securities Index **(MBS)** is an unmanaged index composed of all fixed securities mortgage pools by GNMA, FNMA and the FHLMC, including GNMA Graduated Payment Mortgages. The Barclays Capital Municipal Bond Index **(Muni)** is a market-value-weighted index for the long-term tax-exempt bond market. To be included in the index, bonds must have a minimum credit rating of Baa. They must have an outstanding par value of at least $7 million and be issued as part of a transaction of at least $75 million. The bonds must be fixed rate, have a dated-date after December 31, 1990, and must be at least one year from their maturity date. The Barclays Capital U.S. Credit Bond Index **(Corporate)** is composed of all publicly issued, fixed-rate, nonconvertible, investment-grade corporate debt. Issues are rated at least Baa by Moody's Investors Service or BBB by Standard & Poor's, if unrated by Moody's. The Barclays Capital Asset-Backed Securities Index **(ABS)** is the ABS component of the Barclays Aggregate Index. The ABS Index has three subsectors: credit and charge cards, autos, and utility. The index includes pass-through, bullet, and controlled amortization structures. The ABS Index includes only the senior class of each ABS issue and the ERISA-eligible B and C tranche. The manufactured housing sector was removed as of January 1, 2008, and the home equity loan sector was removed as of October 1, 2009., The Barclays Capital Commercial Mortgage-Backed Securities Index **(CMBS)** measures the performance of investment-grade commercial mortgage- backed securities, which are classes of securities that represent interests in pools of commercial mortgages. The Index includes investment-grade CMBS that are ERISA eligible with $300 million or more of aggregate outstanding transaction size. The Barclays Capital U.S. Corporate High Yield Bond Index **(High Yield)** is an unmanaged index that is comprised of issues that meet the following criteria: at least $150 million par value outstanding, maximum credit rating of Ba1 (including defaulted issues) and at least one year to maturity. The BofA Merrill Lynch U.S. Convertible Bond Index **(Converts)** includes convertible securities with a minimum issue size of $50 million; U.S. dollar denominated; sold into the U.S. market and publicly traded in the U.S.; convertible into U.S. dollar-denominated common stock, ADRs or cash equivalent. The Credit Suisse Senior Floating Bank Loan Index **(Bank Loans)** is designed to mirror the investable universe of the $US-denominated leveraged loan market. The S&P 500 Index a commonly recognized, market capitalization weighted index of 500 widely held equity securities, designed to measure broad U.S. equity performance. It is not possible to invest in an index. Source: Bloomberg, Barclays Capital, BofA Merrill Lynch, Credit Suisse and Standard & Poor's. BofA Merrill Lynch™ indexes not for redistribution or other uses; provided "as is," without warranties and with no liability. Atlanta Capital has prepared this report, BofA ML does not endorse it, or guarantee, review or endorse Atlanta Capital's products.

Exhibit IV. Illustrates the annualized return of the average core bond manager and the Barclays Aggregate index during both rising, declining & full stock market cycles. Rising markets are defined as quarters where the return of the S&P 500 index was positive. Declining markets are defined as quarters where the return of the S&P 500 index was negative. Full market cycles include both rising and declining periods. These positive and negative quarters are separated out from the intervening quarters, cumulated across the period, and annualized. Source: Bloomberg and national consulting firm.

Exhibit V. Lewis, Michael. Moneyball, The Art of Winning an Unfair Game. New York: W.W. Norton, 2003.

Average Core Bond Manager. Calculated based on a national consulting firm's core fixed income peer group and includes 62 members as of 6/30/13.

Capture Ratio. Shows whether the average core bond manager outperformed the Barclays Aggregate index during periods of rising or falling stock prices, and if so, by how much. Periods of rising stock prices are defined as quarters where the return of the S&P 500 index was positive. Periods of falling stock prices are defined as quarters where the return of the S&P 500 index was negative. These positive and negative quarters are separated out from the intervening quarters and cumulated across the period. The ratio is calculated by taking the average core bond manager's cumulative return (in factor form) and dividing it by the Barclays Aggregate. The statistic is not annualized.

About Atlanta Capital. Founded in 1969, Atlanta Capital is an investment advisory firm that specializes in managing high quality stock and bond portfolios on behalf of institutional and individual investors. The firm is a majority-owned subsidiary of Eaton Vance Corp. The firm invests in companies with a demonstrated history of consistent growth and stability in earnings. In fixed income, Atlanta Capital emphasizes securities with stable and predictable cash flows, and low credit and event risk.