A central focus for market and economic forecasts over the next year is the diverging paths of the U.S. Federal Reserve and other central banks.

The Fed appears poised to begin raising interest rates in the second half of 2015 while the European Central Bank and others are moving in the opposite direction with their respective monetary policies.

The U.S. economy is expected to pick up over the next six months. U.S. equities should continue to move higher amid bouts of volatility and frequent pullbacks. Fixed income markets are likely to see higher bond yields and rising volatility.

Globally, economic stimulus measures in Europe and Japan are expected to support stock market gains. Europe and Japan could both avoid a recession in the same year for the first time since 2010.

**Executive summary**

- The Federal Reserve is expected to raise interest rates during the second half of 2015, barring any significant surprises in economic data.

- The U.S. economy should accelerate after a weak start this year and the bull market for stocks is likely to continue, though a correction remains a risk. Technology and financial companies should outperform. Prospects are dimmer for interest-rate sensitive sectors such as utilities and telecommunications.

- Stronger growth is expected for Europe, spurred by a drop in borrowing rates, lower energy prices and other factors. In Japan, aggressive stimulus by the Bank of Japan and a weaker currency could help bolster the manufacturing sector and provide a lift for stocks. China's economy is slowing but its equity market provides upside potential for patient investors.

- Fixed income markets should see higher short-term interest rates, which should contribute to a flatter yield curve and a continuing rise in volatility. Municipal bonds are attractive relative to others in the sector. For corporate bonds, greater volatility is expected in the high-yield market.
More running to stand still

The U.S. equity market—despite touching all-time highs recently—has done more water-treading than moving sharply higher. We expect more of the same in the second half of the year. We expect the market to move gradually higher but with elevated volatility and the possibility of more frequent pullbacks, especially during the run-up to the Federal Reserve’s first interest rate increase.

As we will note in the fixed income section of this outlook, we anticipate an initial increase at the Fed’s meeting in September. Federal Open Market Committee (FOMC) members and Fed Chair Janet Yellen have taken great pains to alert investors that the pace of tightening will be measured and slow, regardless of when it begins.

The Fed is unique among global central banks in that it has both an inflation mandate (as all others do) and an employment mandate. Inflation has only recently picked up from deflationary territory, but the absence of higher wage pressures allowed the Fed to remain accommodative. Now that leading indicators of higher wage pressures are on the rise, both job growth and inflation expectations support an initial rate increase.

Growth to rebound

The economy overall is likely to accelerate in the second half of the year following a weak start. U.S. real gross domestic product (GDP) was negative for the first quarter—a weak first quarter has become a trend for more than a decade. A story in the second half is likely to be the adjustment to how GDP is calculated by the Bureau of Economic Analysis (BEA), with the BEA noting it is “currently examining residual seasonality in several series, which may lead to improvements in seasonal adjustments during the regular annual revision to GDP scheduled for July.” The risk of a recession remains low, with U.S. leading indicators still on the rise, as seen in the chart below.

Leading Indicators Still Rising

Leading economic indicators are rising and appear headed for a new high, as shown by the Conference Board Leading Economic Index.

Dotted lines represent recessions and recoveries to prior high. Solid lines and years noted correspond to period of time between recovery and next recession.

Source: Conference Board, Evercore ISI, FactSet, as of April 30, 2015.

Charles Schwab graphic
Even with a likely upward revision to earlier estimates for GDP growth and the expected rebound, the pace for the full year probably will remain below 3%. Economic growth has struggled to reach the Fed’s expectations, despite higher asset prices overall. The pace of job growth could decelerate as the U.S. economy approaches what is generally considered “full employment.”

Easy monetary policy has yet to trigger a robust new credit cycle, evidenced by the weak “velocity” of money. The velocity of money drives inflation and economic growth. Velocity is often referred to as the “money multiplier.” This is calculated by dividing M2 money supply by the monetary base (the Fed’s balance sheet) and measures whether the money being pumped into the system is entering into the economy via lending and picking up velocity.

**Slow beats fast**

As noted, we expect the Fed to raise rates more slowly than it did in past tightening cycles. Seven of the past eight cycles were considered “fast,” meaning the Fed raised rates at most of the consecutive FOMC meetings. That is not likely to be the case this time. Low inflation and below-trend growth allows for a slower pace, which would collectively serve as positive supports for the stock market.

As shown in the chart below, the market’s performance in the first year of slow tightening cycles has been much stronger than in the first year of fast tightening cycles.

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**Slow vs. Fast Tightening Cycles**

Stock performance as measured by the S&P-500 index has tended to be stronger in the first year of “slow” tightening cycles compared with “fast” cycles.

[Chart showing stock performance comparison]


Source: Ned Davis Research (NDR), Inc. (Further distribution prohibited without prior permission. Copyright 2015 (c) Ned Davis Research, Inc. All rights reserved.)

Charles Schwab graphic
A change in short-term rates is not the only factor that will affect stocks. Changes in longer-term rates, the timing of those changes and the shape of the yield curve all will have a large impact on stocks. A steeper yield curve historically has coincided with better stock market performance because it implies still-accommodative monetary policy on the short end, but positive economic expectations on the long end. If the yield curve were to flatten because of Fed tightening—but amid diminished economic growth forecasts—it would be a negative for stocks.

Neutral in the short term, optimistic longer term

We started the year with a market-weight (neutral) recommendation on U.S. stocks. We still maintain this view. Earlier we had a more positive view for much of the long-running bull market. The bullish case for stocks generally focuses on still-accommodative monetary policy, improving earnings and continued financial engineering (i.e., stock buybacks). The bearish case generally focuses on elevated valuations and asset bubbles—the latter blamed by some on the Fed’s easy-money policies. We find ourselves in the middle.

Valuations are mixed to stretched, depending on how they are measured; but earnings growth is accelerating following depressed expectations in the first half of the year. Valuations are likely to improve as earnings improve. That said, revenue growth is likely to remain relatively anemic, while wage growth/unit labor costs are accelerating and productivity is weak. This is likely to put increasing pressure on corporate profits.

In addition, we are now in the third-longest streak in history without at least a 10% correction in the S&P 500. This doesn’t necessarily mean stocks are overdue for a correction, but it is a risk. Another risk is “groupthink,” an increasingly debated topic that has been driven by global central banks pursuing various quantitative easing (QE) strategies. This has depressed global yields and encouraged investors to embrace leverage and a narrowing pool of higher-yielding investments. This can, as we saw during the mini rout in global bond markets in April/May, cause liquidity problems, which is a risk across asset classes.

Investor ambivalence

We remain optimistic longer term, however, largely due to still-subdued investor sentiment. Investors remain skeptical even after a more than six-year bull market for stocks. Bullishness and bearishness both are at very low levels, according to the American Association of Individual Investors (AAII). As such, the number of investors expressing a neutral view on the stock market is quite high (nearly 50% recently). Historically, when AAII’s neutral reading is at or above 50%, the forward returns for the S&P 500 are more than twice the long-term normal rate of return—for three, six and 12 months later, with a higher percentage of positive returns.

Bottom line: Although we expect a rise in volatility and a higher risk of pullbacks, we believe the bull market that began in 2009—which we characterize as a “secular” bull market—is not over.
In Focus: U.S. Stock Sectors

Factors determining sector performance over the next six to 12 months appear to be the revival of capital expenditures, a continuing rise in consumer technology and the Federal Reserve’s plans to normalize monetary policy. As a result, we believe that both technology and financials could outperform, while we are negative on the prospects for interest-rate sensitive sectors such as utilities and telecommunications.

Technology has had a good run over the past year.
We believe more is to come. Following the “great recession” of 2008, businesses lacked the confidence to spend money on capital improvements. Technology can become outdated quickly and businesses are now playing catch up by increasing their capital spending. We believe capital spending will increase as companies dig out of an apparently deep hole. Also, solid balance sheets with large cash balances should allow tech companies to expand dividend payments and buyback programs. This could help to bolster share prices in the tech sector.

As the economy and confidence have recovered, the Fed is poised to begin raising interest rates this year. Higher yields could allow financial services companies to profit more from the cash they hold. The regulatory burden is increasing at a slower pace. This should benefit the financial services sector.

On the downside, we believe the utilities and telecom sectors, which have benefited from investors seeking income, will underperform over the next six to 12 months as investors anticipate rising rates that is increasing at a lesser rate.

Tech expenditures on the rise

Businesses overall have been increasing their capital expenditures on technology upgrades, according to government figures, reaching more than $318 billion in the first quarter of 2015.

Investment in technology (in billions)


Charles Schwab graphic
Best growth in five years

Both Europe and Japan might avoid a recession in 2015 for the first time since 2010. Last year’s recession in Japan was driven by a tax increase and followed two years of recession in Europe. Europe’s recession was driven in part by higher taxes and budget cuts, which was preceded by a recession in Japan from the effects of the March 2011 tsunami. It has been five years since global growth was as strong and balanced as it is at the midway point of 2015, supporting further gains for stocks.

While the U.S. Fed is withdrawing economic stimulus, the central banks of Europe and Japan are aggressively adding stimulus. This should help to sustain the economic recovery and support the stock market over the coming year.

Europe’s recovery

As a region, the Eurozone represents the largest economy in the world—an economy that has been a drag on the pace of global economic activity in recent years. The European Central Bank (ECB) has moved forcefully to counter weakness with measures designed to weaken the euro, lower borrowing costs and encourage bank lending. Relative to GDP, the size of the ECB’s Quantitative Easing (QE) stimulus program over the next 12 months is smaller than that of Japan. But it is comparable to that seen in the United States on average over the Fed’s three QE programs and larger than the one introduced by the Bank of England. The ECB’s QE differs from those in the United States, United Kingdom and Japan since the planned pace of bond buying is likely to exceed issuance of new government debt. Also, unique to Europe is that deposit rates are below zero, further encouraging banks across Europe to lend out their cash reserves.

All Together Now

It appears that 2015 maybe the first year for globally synchronized growth since 2010.

GDP by year for selected economies

<table>
<thead>
<tr>
<th>Year</th>
<th>United States</th>
<th>Eurozone</th>
<th>Japan</th>
</tr>
</thead>
<tbody>
<tr>
<td>'07</td>
<td>6%</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>'08</td>
<td>2%</td>
<td>2%</td>
<td>-6%</td>
</tr>
<tr>
<td>'09</td>
<td>-2%</td>
<td>0%</td>
<td>-6%</td>
</tr>
<tr>
<td>'10</td>
<td>6%</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>'11</td>
<td>2%</td>
<td>2%</td>
<td>-4%</td>
</tr>
<tr>
<td>'12</td>
<td>2%</td>
<td>2%</td>
<td>-2%</td>
</tr>
<tr>
<td>'13</td>
<td>2%</td>
<td>2%</td>
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</tr>
<tr>
<td>'14</td>
<td>2%</td>
<td>2%</td>
<td>0%</td>
</tr>
<tr>
<td>'15*</td>
<td>4%</td>
<td>4%</td>
<td>0%</td>
</tr>
</tbody>
</table>

*2015 is the Bloomberg economist consensus forecast
Source: Charles Schwab, Bloomberg data as of 5/25/2015
Charles Schwab graphic
Economic activity in Europe has seen a renaissance, helped by the depreciation of the euro, the reduction in borrowing rates and a decline in energy prices.

- Eurozone GDP growth has accelerated to 0.9% in the fourth quarter, up from a 0.8% year-over-year pace in the third quarter of 2014, and to 1% in the first quarter of 2015, according to Eurostat.
- Manufacturing activity has improved steadily since November 2014, measured by the rise in the Markit Eurozone Manufacturing Purchasing Manager Index.
- The Eurozone’s unemployment rate has fallen by nearly a full percentage point from the all-time high of 12.1% in June of last year, according to Eurostat.
- Exports from Germany, the Eurozone’s largest economy, grew 12.4% from a year ago in March, according to the German Federal Statistical Office.

After rising at an average annual pace of 8% in the years leading up to the financial crisis of 2008-2009, borrowing by consumers has been flat for the past several years. This has held down core consumer spending, which has merely tracked the sluggish pace of income growth. Now, low interest rates, rising confidence among consumers and business leaders, lower bank lending standards, the end of bank stress tests and a funding program for banks from the ECB all have contributed to a recent rise in borrowing by businesses and consumers. This has helped to support a recent increase in consumer spending. Eurozone new car registrations, for example, were up 7% in April from a year earlier, according to the ECB.

The ECB’s actions have spurred faster money supply growth, which has been a good leading indicator of economic growth in Europe. The rise in the real money supply is pointing to stronger economic growth in Europe in the quarters ahead. A stronger growth outlook may benefit investors.

**Recovery Mode**

Rising money supply points to faster economic growth in Europe

- Europe Real GDP year-over-year % change (left scale)
- Europe Real M1 year-over-year % change advanced 3 quarters (right scale)

Source: Charles Schwab, Bloomberg data as of 5/5/2015.
While Greece remains the focus of investors who are examining European political developments, the risk of a financial contagion has been greatly diminished from the threat posed a few years ago since about 80% of Greece’s debt now is held by government institutions and not private investors or highly leveraged banks. The drama over Greece may be obscuring a general decline in political risk in Europe. The surprisingly decisive outcome for the mainstream in the U.K. election in May highlights a recent shift in political momentum also seen in France and Germany back to mainstream parties. The resurgence of mainstream parties may continue, given new electoral reform law in Italy and a similar proposal in Spain. This is lowering the risk of unpredictable policy shifts for investors in Europe.

Japan’s revival

Japan’s economy is struggling to maintain economic momentum after emerging from recession in 2014. Nationwide retail sales, for example, rose 14% in April from a year ago, according to the Japan Department Store Association, but that jump is largely due to the tax increase that went into effect in April of 2014 that led to the recession.

The economy should get a boost from the aggressive stimulus provided by the Bank of Japan that is weakening the yen, along with potential for the approval of a new trade agreement that includes the United States. Japan has almost no tariffs on most manufactured products so those businesses would not lose any protection in domestic markets, but the elimination of tariffs by other countries could lead to higher exports for Japanese manufacturers. The return of growth to manufacturing could provide a lift to profits and further boost to Japan’s stock market, which has led the developed markets so far in 2015.

China’s transformation

Investors’ focus on China’s slowdown may be misplaced. As China’s pace of growth slows, the internal transformation to a more sustainable engine of economic growth appears to be working. Consumer spending is the largest component of China’s economy. In 2013, the most recent year for which there is a GDP breakdown, China’s private consumption rose by $430 billion, which was more than the increase in U.S. consumer spending. Manufacturing in China is now a smaller part of the economy than services. Services outgrew the overall economy, rising 7.9% in the first quarter.

Chinese stocks have rallied on better policy and support for growth. Over the past year, the government provided support for growth while undertaking reforms. The central bank cut interest rates and lowered the reserve ratio requirements for banks. This has helped Chinese stocks break out of a nearly five-year bear market. The Chinese stock market shows signs of speculation and a correction is possible, but we still find Chinese stocks attractive on a longer-term basis.
In Focus: China

China’s economy is slowing but the country’s importance to global investors is not going away.

China’s stock market has been underrepresented in global indexes — but that is changing. MSCI deferred inclusion of Chinese A-shares in the Emerging Market Index in June, but inclusion is likely over time. This means China could eventually represent 44% of the index, up from 23% in March.

China’s local stock market is slowly opening up to foreign investment through the Shanghai Hong Kong Stock Connect. Cross-border trading is expected to extend to the Shenzhen stock exchange in late 2015, and other foreign exchanges in addition to Hong Kong over time.

The Chinese renminbi (RMB), or yuan, could be added as a reserve currency in the IMF’s Special Drawing Rights (SDR) basket of currencies in the vote this fall that comes only once every five years. China has been opening up its financial system and use of the RMB in international trade and capital transactions is increasing. However, the RMB is unlikely to replace the U.S. dollar as the dominant global currency any time soon.

China’s increased integration with global markets could result in foreign capital inflows that benefit local businesses’ access to and cost of capital. China, however, also is gradually opening its capital account and as it matures and looks outside of its borders for growth. This means China could become more of a source, rather than a destination, of capital investment.

Pursuing reform versus growth, as well as opening up and moving to market-based forces is a balancing act. We believe China has the tools and resources to navigate these changes, but there are risks. Chinese H-shares stocks trading in Hong Kong appear to reflect these risks, giving the possibility for upside for patient investors.

Larger Role

China’s importance to investors is likely to grow. MSCI’s roadmap for the Emerging Market Index shows China could grow to 44% of the index over time.

<table>
<thead>
<tr>
<th>EM MSCI Index March 2015</th>
<th>EM MSCI Index Potential</th>
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</thead>
<tbody>
<tr>
<td>Rest of Emerging Market:</td>
<td>77%</td>
</tr>
<tr>
<td>China: 23%</td>
<td></td>
</tr>
<tr>
<td>Rest of Emerging Market:</td>
<td>56%</td>
</tr>
<tr>
<td>China: 44%</td>
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</tr>
</tbody>
</table>

Source: MSCI, as of 4/23/2015.
Charles Schwab graphic
This won’t be easy

In the second half of the year, the fixed income market is likely to be characterized by higher short-term interest rates, a flatter yield curve and increased volatility. We expect the Federal Reserve to raise the Fed funds rate, starting at its September meeting, barring any major surprises in the economic data.

Although the market has been anticipating an increase in the Fed funds rate in the months ahead, it is likely to send bond yields higher. Historically, the six months around the first rate hike of a cycle are the worst time for the bond market.

Federal Reserve policy

Barring a significant decline in economic growth, we expect the Fed to raise short-term interest rates, probably by at least 50 basis points in the second half of the year. Waiting until the September meeting to begin the process will give the Fed time to be sure that the economy rebounded in the second quarter after a slow start to the year.

Our expectation continues to be that the course of Fed policy tightening will be slow compared to past cycles and that the potential peak in the Fed funds rate is likely to be lower than the long-term average of 4%. Unlike past rate hike cycles, the Fed’s goal is not to slow an overheating economy but rather to end the zero interest rate policy set in place during the financial crisis. A slow path of rate hikes is likely since GDP growth over the past five years has averaged only 2.2%, far slower than prior to the financial crisis and the Fed’s preferred inflation rate, the core PCE deflator, has been below its 2% target for nearly three years.

Global economic growth is still slow and the strength of the dollar is an offsetting factor for tighter Fed policy. The unemployment rate, however, is approaching the Fed’s target of 5% to 5.25% estimated “full employment” range and the output gap – the difference between potential and actual growth – appears on a path to close by late 2017.

Still Far Apart

Market estimates for interest rates remain below the Federal Reserve's estimates.

<table>
<thead>
<tr>
<th>Fed Funds rate</th>
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<tbody>
<tr>
<td>4%</td>
</tr>
<tr>
<td>3%</td>
</tr>
<tr>
<td>2%</td>
</tr>
<tr>
<td>1%</td>
</tr>
<tr>
<td>0%</td>
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</table>


Charles Schwab graphic
Further, with negative short-term real interest rates since December 2008, and the
term premium in bonds very low, comments from various Fed officials suggest an
eagerness to begin restoring interest rates to a more normal level soon. Currently,
the median estimate for the longer-run Fed funds target provided by the FOMC is
3.75%, but we believe that is too high, given the outlook for growth and inflation,
and wouldn’t be surprised to see that estimate lowered. Market based expecta-
tions point to a target of about 2.75% in the longer run, which we believe is more
realistic.

Yield curve flattening

Since the Fed is starting at a point of negative real short-term interest rates and low
inflation, we think the impact of tightening will be strongest on the short end of the
yield curve. To some extent, the market has already begun to discount tighter mon-
etary policy. Two-year Treasury note yields are now about 65 basis points higher
than they were at the start of the “taper tantrum” in May 2013. The curve, however,
is still steep at approximately 175 basis points between the Fed funds rate and five-
year Treasury yields, while it has already flattened between five- and 10-year yields.
We expect considerable volatility in the slope of the yield curve at the beginning of
the Fed’s rate hike cycle, but longer-term, the yield curve tends to flatten as the Fed
raises rates. Moreover, ongoing low inflation and strong investor demand for yield
is likely to mean that intermediate-to-longer-term rates don’t move up as much as
short-term rates, resulting in a flatter yield curve over the next year.

The dollar’s strength is also likely to contribute to a flattening yield curve. The
trade-weighted dollar index has moved up by about 15% over the past year,
reflecting the relative strength of the U.S. economy and the divergence between
U.S. monetary policy and monetary policy abroad. U.S. Treasury yields are
significantly higher than rates in other G-8 countries and Europe, Japan and China
are all pursuing easier monetary policies. Since U.S. dollar appreciation tends to
have a similar impact on the economy that a rate increase does, by holding down
inflation and slowing export growth, its impact is similar to a tightening in monetary
policy by the Fed.

Rising volatility

We expect volatility in the fixed income markets to continue to rise over the next six
to 12 months as a result of the Fed’s shift toward tighter policy and declining
liquidity in the markets. Quantitative easing suppressed volatility in the bond
market. Since the end of the bond buying program late last year, fixed income
volatility has increased substantially. The MOVE index (Merrill Lynch Option Volatility
Estimate Index) has jumped from under 60 a year ago to more than 90 recently.

We believe the increase has been exacerbated by diminishing liquidity in the bond
market. Banks and brokers dealers are holding far less inventory of fixed income
investments compared to before the financial crisis. Consequently, prices and
yields have tended to move in very wide bands over short time periods. We expect
bouts of volatility over the next six to twelve months in the bond markets.
Less-liquid sectors of the markets, such as high yield and emerging market bonds,
are likely to be more vulnerable to wide price swings.
We expect bouts of volatility over the next six to twelve months in the bond markets.

Takeaway for investors

The combination of rising short-term interest rates, a flattening yield curve, strong dollar and increased market volatility presents challenges for fixed income investors. Shortening the average duration in portfolios through the use of barbells is one way to deal with a rising interest rate environment. A portfolio that divides exposure between very short-term bonds or cash and intermediate-term bonds that brings average duration under five years could help reduce potential price declines as the Fed raises rates. It can also allow investors the flexibility to reinvest principal at higher rates over the course of the tightening cycle. Investors might also consider adding investment grade floating-rate notes to their portfolios. Bond ladders, which spread out maturities evenly over the investment horizon, can also be used to avoid trying to time the markets and allow flexibility for reinvestment of principal and/or interest as rates rise.
In Focus: Corporate Bonds

Credit valuations have improved since mid-2014, when spreads reached post-crisis lows. However, we expect corporate bond volatility to pick up in the second half of the year as the Federal Reserve begins to move away from the extraordinarily loose monetary policies that have been in place for more than six years.

Corporate bond liquidity could decline, especially with high-yield bonds, as primary dealers have been reducing their net positions in corporate bonds while the size of the market has continued to grow. With fewer potential buyers, periods of selling could disrupt the market. Additionally, we think the low price of oil can continue to weigh on high-yield energy companies, and covenant quality continues to erode.

In our view, there is less credit risk for investment grade corporate bonds as they tend to be much more liquid than high-yield bonds, and energy companies make up a smaller share of the market compared to high-yield bonds.

Yields and spreads are still low, however, for both investment grade and high-yield bonds. The average option-adjusted spreads for both markets remain below their respective 20-year averages; however, high-yield bond spreads are well below the average, compared with investment grade bonds.

As we approach the first Fed rate increase, we expect greater volatility in high-yield corporate bonds, potentially pushing spreads higher and prices lower. Investment grade corporate bond spreads have remained in low trading ranges for extended periods of time in the past, and we expect that to continue this year, leading to potential outperformance relative to Treasuries.

The high coupons that high-yield bonds offer may help them post positive total returns over longer time horizons, but with the heightened risks the market faces today, we expect short-term performance to be more volatile. Investors who can’t stomach the volatility should consider moving up in quality to investment grade corporate bonds.


1Barclays U.S. Corporate Bond Index and Barclays U.S. Corporate High Yield Bond Index, respectively. Option-adjusted spreads (OAS) are quoted as a fixed spread, or differential, over U.S. Treasury issues. OAS is a method used in calculating the relative value of a fixed income security containing an embedded option, such as a borrower’s option to prepay a loan.

Holding Less

Dealers positions have been declining in the face of ballooning issuance.


Charles Schwab graphic
In Focus: Municipal Bonds

Municipal bonds are attractive, in our view, relative to other fixed income sectors despite lagging performance to Treasuries and corporate bonds to start 2015. We favor munis with ratings A- and higher for individual investors with average maturities between 5 and 15 years and munis over Treasuries and corporates in taxable accounts.

Comparing yields

After-tax yields are attractive relative to Treasuries and corporate bonds. Issuance in the corporate bond markets has greatly outpaced issuance in muni market.

Because of it this, along with the 3.8% surcharge tax added to investment income for individuals reporting taxable income of $200,000 or higher and $250,00 or higher for couples, munis are attractive for most investors in taxable accounts on an after-tax basis. The chart below shows details.

The muni advantage

After-tax municipal yields are attractive relative to corporate bonds.

<table>
<thead>
<tr>
<th>Municipal</th>
<th>Percentage of Index</th>
<th>Yield to worst</th>
<th>Percentage of Index</th>
<th>Yield to worst</th>
<th>After-tax Corporate*</th>
<th>After-tax Corporate**</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAA</td>
<td>13%</td>
<td>1.87%</td>
<td>1%</td>
<td>2.85%</td>
<td>2.14%</td>
<td>1.61%</td>
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<tr>
<td>AA</td>
<td>50%</td>
<td>2.13%</td>
<td>9%</td>
<td>2.41%</td>
<td>1.80%</td>
<td>1.36%</td>
</tr>
<tr>
<td>A</td>
<td>32%</td>
<td>2.66%</td>
<td>46%</td>
<td>2.85%</td>
<td>2.13%</td>
<td>1.61%</td>
</tr>
<tr>
<td>BBB</td>
<td>5%</td>
<td>3.26%</td>
<td>45%</td>
<td>3.68%</td>
<td>2.76%</td>
<td>2.08%</td>
</tr>
</tbody>
</table>

Yield to worst: Lowest potential yield on a bond without the issuer defaulting.

*25% Federal **39.6% Federal + 3.8% ACA tax

Source: Barclays, as of May 20, 2015. After-tax yields do not assume state or local taxes.

Pensions in Spotlight

The recent downgrade of Chicago highlights pension issues, increased scrutiny from rating agencies, and the differences in legal protections by state. Nationally, the trend in credit – and ratings – for state and local governments has been positive. But there are outliers in how rating agencies are weighing pension issues in their analysis. Moody’s, for example, downgraded Pennsylvania, Hawaii, Kentucky, Connecticut, New Jersey, and Illinois due to pension costs in the past two years. We suggest that investors look closely at rating downgrades and consider the trend in issuers that postpone pension contributions or are legally restricted from cutting costs.
Shrinking Debt

Supply in muni markets remains tight. Issuance in the muni market year-to-date is up from 2014, but is still dominated by refunding activity not municipalities raising new capital. As a result, the debt outstanding in the muni market is shrinking. This trend sharply contrasts with the corporate and Treasury markets and has made it difficult for muni investors to find new bonds for reinvestment from maturing or called bonds or new investments. We expect that this trend will continue. States and municipalities continue to delay borrowing, despite low interest rates.

Puerto Rico

We see Puerto Rico as a concern, but not a major risk, to markets. All major rating agencies rate Puerto Rico deep into sub-investment grade or junk rating territory. The new administration in Puerto Rico is actively seeking opportunities to postpone debt payments or restructure debt. The administration has been unable to do so for legal reasons, not because they do not need or desire a default and restructuring. Crossover buyers – buyers who typically do not invest in municipal bonds - have stepped into to buy Puerto Rican debt. These investors may have more speculative investment objectives. Many mutual funds have exposure as well since owning Puerto Rican bonds can boost a fund’s yield. Investors should look carefully at funds with sizable Puerto Rican exposure.

Takeaway for investors

We favor investment-grade munis over Treasuries and corporates for investors in taxable accounts, but continue to watch interest-rate risk as a Fed rate increase nears.
Liz Ann Sonders
Senior Vice President,
Chief Investment Strategist
Twitter: @LizAnnSonders

Liz Ann Sonders’ investment strategy responsibilities range from market analysis to economic strategies for individual, corporate, and institutional investors. She is a keynote speaker at many Schwab client and corporate events. Sonders earned a bachelor’s degree in economics and political science from the University of Delaware and an MBA in finance from Fordham University.

Kathy A. Jones
Senior Vice President,
Chief Fixed Income Strategist,
Schwab Center for Financial Research
Twitter: @KathyJones

Kathy A. Jones is responsible for interest rate, credit market and currency analysis and fixed income education for investors. She works with both institutional and retail clients and is a frequent speaker at Schwab client and industry events. Jones received her undergraduate degree with honors in English literature from Northwestern University and her MBA in finance from Northwestern University’s Kellogg Graduate School of Management.

Jeffrey Kleintop, CFA
Senior Vice President,
Chief Global Investment Strategist
Twitter: @JeffreyKleintop

Jeffrey Kleintop analyzes and discusses international markets, trends, and events to help investors understand their significance and financial implications. Kleintop has served as a chief strategist for nearly two decades in the financial services industry, serving individual and institutional investors. He earned his B.S. degree in Business Administration from the University of Delaware and received his M.B.A. degree from Pennsylvania State University.

Michelle Gibley, CFA
Director, International Research,
Schwab Center for Financial Research

Michelle Gibley conducts stock market research and analysis, specializing in international markets. She writes regularly on specific international topics and frequently quoted in national media outlets. Gibley has 19 years of experience in the investment industry, including pension fund investment consulting and equity analysis. She graduated with honors from the University of Colorado with a bachelor’s degree in finance and is a Chartered Financial Analyst (CFA) charter holder.

Brad Sorensen, CFA
Managing Director,
Market and Sector Analysis,
Schwab Center for Financial Research

Brad Sorensen heads market and sector analysis for the Schwab Center for Financial Research and writes for several Schwab publications. Sorensen graduated from the University of Colorado with a bachelor’s degree in finance and master’s degrees in business administration and finance. He holds a Chartered Financial Analyst designation.

Rob Williams, CFP®
Managing Director, Income Planning,
Schwab Center for Financial Research

Rob Williams focuses on fixed income and income-planning issues, including key topics of interest to individual investors seeking to increase income from their portfolios. He also provides analysis of bonds, fixed-income strategies and other income-oriented issues. Williams earned his bachelor’s degree from Princeton University and his M.B.A. from the University of California, Berkeley.

Collin Martin, CFA
Director, Fixed Income,
Schwab Center for Financial Research

Collin Martin is responsible for providing analysis and investor education in fixed income, with a focus on the credit markets. Prior to joining Schwab in 2012, Collin was a fixed income strategist with Morgan Stanley Smith Barney, where he published fixed income model portfolios for individual investors. He also contributed to monthly fixed income strategy publications, focusing on international debt markets. Martin received his undergraduate degree in finance from Saint Joseph’s University in Philadelphia. He is a Chartered Financial Analyst charter holder.
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Fixed income securities are subject to increased loss of principal during periods of rising interest rates. Fixed-income investments are subject to various other risks including changes in credit quality, market valuations, liquidity, prepayments, early redemption, corporate events, tax ramifications and other factors.

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International investments involve additional risks, which include differences in financial accounting standards, currency fluctuations, geopolitical risk, foreign taxes and regulations, and the potential for illiquid markets. Investing in emerging markets may accentuate these risks.

Index definitions

The Conference Board’s Leading Economic Index (LEI) is a composite average of individual economic indicators designed to capture turning points in aggregate economic activity better than any individual component.

Purchasing Managers Index (PMI) is an indicator of the economic health of the manufacturing sector. The PMI index is based on five major indicators: new orders, inventory levels, production, supplier deliveries and the employment environment.

MSCI Emerging Markets (EM) Index is a free float-adjusted market capitalization index that is designed to measure equity market performance of emerging markets. The MSCI Emerging Markets Index consists of the following 23 emerging market country indices: Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, Philippines, Poland, Qatar, Russia, South Africa, Taiwan, Thailand, Turkey, and the United Arab Emirates.

Barclays U.S. Corporate High-Yield Bond Index covers the USD-denominated, non-investment-grade, fixed-rate, taxable corporate bond market. Securities are classified as high yield if the middle rating of Moody’s, Fitch, and S&P is Ba1/BB+/BB- or below.

Barclays U.S. Corporate Bond Index covers the USD-denominated, investment-grade, fixed-rate, taxable, corporate bond market. Securities are included if rated investment grade (Baa3/BBB−/BBB−) or higher using the middle rating of Moody’s, S&P, and Fitch. This index is part of the U.S. Aggregate.

The S&P 500 Index is a capitalization-weighted index of 500 stocks from a broad range of industries. The component stocks are weighted according to the total market value of their outstanding shares.

Barclays Municipal Bond Index is a rules-based, market-value-weighted index engineered for the long-term tax-exempt bond market. To be included in the index, bonds must be rated investment grade (Baa3/BBB− or higher) by at least two of the following ratings agencies: Moody’s, S&P, and Fitch. The Barclays Municipal Bond: Muni Short (1-5) Index, Municipal Bond: Muni Intermediate (5-10) Index, Municipal Bond: Long Bond (22+) Index, Municipal AAA Index, Municipal AA Index, Municipal A Index, and Municipal BAA Index are all sub-indices of the Barclays Municipal Bond Index.
Please reach out to the contacts below if you would like additional information or to schedule an interview with an expert from the Schwab Center for Financial Research.

**Schwab Public Relations**

Michael Cianfrocca  
michael.cianfrocca@schwab.com  
415-667-0344

Hibah Yousuf  
hibah.yousuf@schwab.com  
415-667-0507

Erin Montgomery  
erin.montgomery@schwab.com  
212-403-9271

Kaitlyn Downing  
kaitlyn.downing@schwab.com  
212-403-9240