

2 Realigning income portfolios

CONTENTS

- 2.1 Escaping the negative yield trap
- 2.2 Stocks for bond people: Go for growers
- 2.3 Earn income waiting for a bear market
- 2.4 Where the bonds still have yield
- 2.5 Borrow cheaply and seek income
- 2.6 Seek carry from illiquid managers

Private Bank



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2.1 Escaping the negative yield trap

STEVEN WIETING, CHIEF INVESTMENT STRATEGIST AND CHIEF ECONOMIST

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Very low and negative bond yields pose an unprecedented challenge for investors. The time to realign your income seeking portfolio is now.

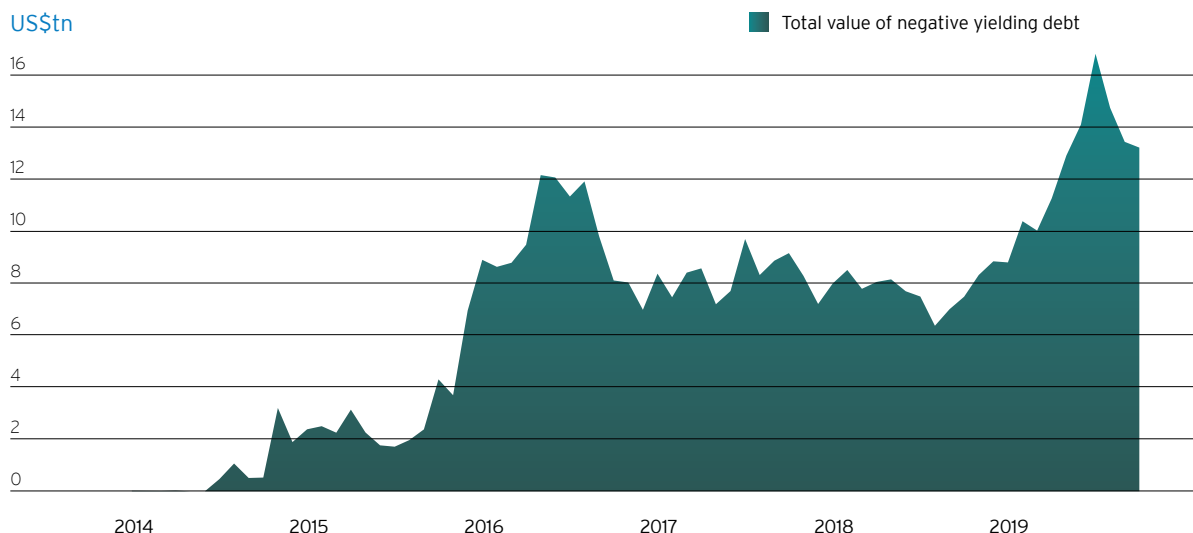
KEY MESSAGES

- Fixed income yields hit record lows in 2019 and economic conditions will keep them low
- Further monetary easing from central banks is likely to keep rates down
- Opportunities for income will include certain equities, capital markets strategies, and alternative managers
- Certain bonds still offer relatively attractive yields
- Low rates can enable cheap borrowing to invest in higher yielding assets

Historically, income from bonds has been vital to core portfolios. Reinvesting bond income has provided a major source of long-term total returns. A regular flow of bond income has also served to preserve capital by stabilizing core portfolio returns over time, particularly during periods of market stress. Bond income has also provided key liquidity for other purposes within core portfolios and beyond.

As we head into 2020, fixed income markets worldwide are suffering from an intense shortage of yield. Another strong year of price performance has driven yields on many bonds to fresh record lows. Globally, yields have fallen to about 1.6%. Excluding US bonds, this declines to just 0.6%. In many markets, yields have actually turned negative. In other words, buyers of such bonds are actually paying for the

FIGURE 1. GLOBAL NEGATIVE YIELDING DEBT SECURITIES



Source: Haver as of 20 Nov 2019. Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment. Past performance is no guarantee of future results. Real results may vary.

privilege of lending their money. We estimate that some \$12tn of debt worldwide trades on negative yields as of 1 December 2019 - **figure 1**.

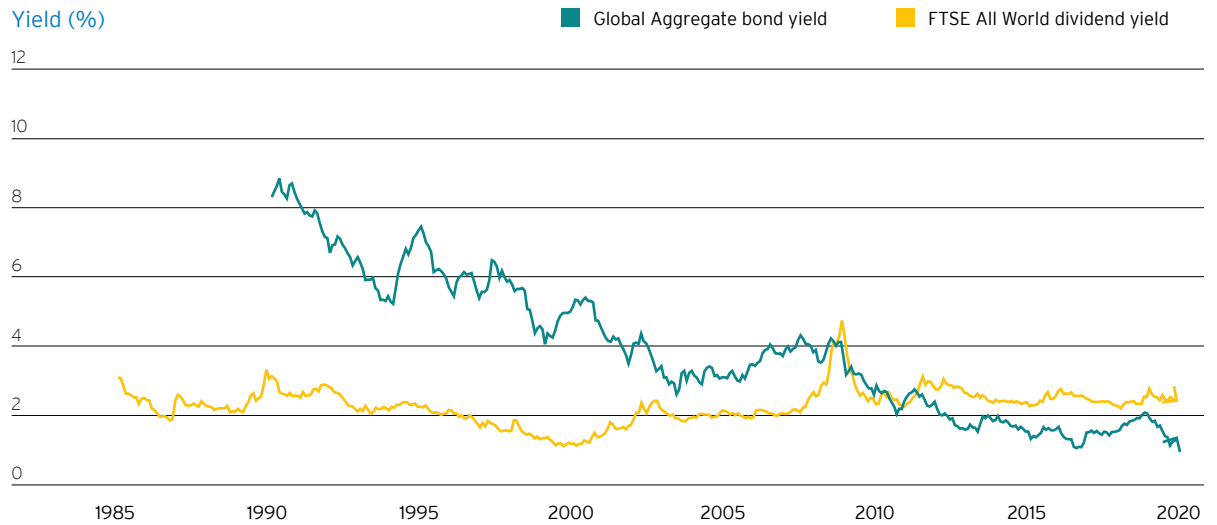
The picture looks even bleaker once we consider inflation. We estimate that real bond yields - that is, after inflation - have now turned negative in every single developed country. Moreover, there seems little immediate prospect of any lasting respite. Granted, long-term rates have rallied from their record lows of 2019. However, central banks globally have embarked upon a new monetary easing cycle. Additional quantitative easing may well keep certain yields - particularly on short-duration securities - very low. In a future recession, many of today's remaining positive yielding investment grade bonds - such as the US 10-year Treasury - may see their yields also approach zero.

Escape the negative yield trap: Realign your portfolio!

Citi Private Bank believes that income seeking portfolios need to escape the negative yield trap by looking beyond bonds. A major element of our recommendation relies more upon equities for income. The dividend yield on global equities has exceeded the yield on global bonds for several years - **figure 2**. Owing to the strong rally in bond prices over the last year, the gap between the two has widened further in favor of equities. Immediately prior to the financial crisis, bonds yielded 2% more than equities. Going back further, the gap was even greater. In our view, the current profound reversal in the yield landscape demands a shift in your approach.

A shift in portfolios is not a recommendation to move wholesale from fixed income to equities. Instead, we recommend you combine both asset classes in your portfolio to improve your income

FIGURE 2. DIVIDEND YIELDS ABOVE BOND YIELDS GLOBALLY



Source: Haver as of 13 Nov 2019. Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment. Past performance is no guarantee of future results. Real results may vary. Global Aggregate bond yield from Bloomberg Barclays Global Aggregate Index. See Glossary for definitions.



and total return potential. If you currently invest entirely in fixed income, this means shifting part of your holdings into certain dividend yielding equities. If you're already invested in equities and bonds, this means reallocating away from negative and very low yielding bonds and towards certain dividend equities, hybrids, and select fixed income markets based on your risk tolerance. We also highlight yield seeking capital markets strategies, as well as certain alternative investments, on the understanding that they may increase your portfolio's risk and illiquidity profile.

You may be thinking, "Isn't replacing bonds with equities just plain risky?" After all, equities' volatility has historically been four times greater than that of bonds, even over full-year periods. Particularly if you've only invested in bonds for the past decade, this may sound unsettling. Based on our analysis, the worst calendar year return over the past century from a portfolio made up of 30% US equities and 70% long-duration bonds would have been a 25.7% loss. That's almost identical to the 25.6% worst loss for a bonds-only portfolio. On the upside, however, the '30/70' portfolio produced a median annual return of 7% versus 4.8% for the bonds-only portfolio. Today, long-duration bond yields stand at less than half their historic average.¹ This means that it is more likely than not that the total return from the blended portfolio we now recommend could potentially exceed that of a comparable bond-only portfolio.

Of course, this recommendation rests on an allocation to a specific set of equity income strategies. As we will show, some of these strategies have historically proven less risky than equities overall. At the same time, bonds with very low or negative yields will not provide quite the same stabilizing influence in portfolios that they did when their yields were higher.

In the articles that follow, we set out some of the main opportunities that we see for realigning your income portfolio in today's yield-starved landscape. We explain which dividend-based strategy we think offers attractive combinations of potential return and relative safety - see **Stocks for bond people: Go for growers**. We explore a capital markets strategy that seeks to generate a fixed income stream from equity volatility for qualified clients - see **Earn income waiting for a bear market**. And we examine various possibilities for borrowing at a lower rate² to enable investing in higher yielding assets - see **Borrow cheaply and seek income**. Importantly, we also highlight certain categories of bonds that still offer reasonable yield potential - see **Where the bonds still have yield**.

The appropriate combination of opportunities for your portfolio will depend on your personal circumstances. However, while the specific approach we recommend will vary from client to client, we have one piece of advice that applies to everyone: **the time to realign your income seeking portfolio is now**. With central banks back to easing yet again, it makes sense to try to lock in higher rates on certain investments. Let us work with you to help escape the negative yield trap.

¹ Bonds are affected by a number of risks, including fluctuations in interest rates, credit risk and prepayment risk. In general, as prevailing interest rates rise, fixed income securities prices will fall. Bonds face credit risk if a decline in an issuer's credit rating, or creditworthiness, causes a bond's price to decline. High yield bonds are subject to additional risks such as increased risk of default and greater volatility because of the lower credit quality of the issues. Finally, bonds can be subject to prepayment risk. When interest rates fall, an issuer may choose to borrow money at a lower interest rate, while paying off its previously issued bonds. As a consequence, underlying bonds will lose the interest payments from the investment and will be forced to reinvest in a market where prevailing interest rates are lower than when the initial investment was made.

² All credit is subject to approval

2.2 Stocks for bond people: Go for growers

WIETSE NIJENHUIS, GLOBAL HEAD OF EQUITY STRATEGY

Equities with a long history of consistent dividend growth can provide diversification from zero and negative yielding bonds in your portfolio.

KEY MESSAGES

- 'Dividend growers' - equities that have long and consistent records of growing dividend payments - are especially valuable to portfolios now
- Global and US dividend growers have outperformed the broader equity indices in recent decades
- They perform well in periods of modest growth, such as we expect in 2020
- We believe dividend growers can replace certain bonds in your portfolio



For income seeking portfolios, we see a compelling case for replacing certain low and negative yielding bonds with dividend paying equities. We advocate a specific dividend strategy that focuses on dividend growth, rather than simply upon high current yield. Here's why:

Reaching for current yield can be dangerous. One reason for this is that high dividend yield strategies often include companies that are in danger of cutting their dividend payments. They also typically include many more highly indebted companies. In today's advanced economic cycle conditions, we prefer to avoid these risks. Instead, we identify what we see as a better class of dividend paying equities that we call 'dividend growers' - see note below **figure 3**.

Dividend growers are companies that have consistently grown their dividend payments over time. Companies that emphasize dividend growth as a goal are courting investors who want a total return based upon cash payments and earnings growth. As these companies' dividend payments represent a sustainable proportion of their profits, they are not maximizing payouts or taking on unsustainable levels of debt to enable them. Consistent dividend growth is obviously an attractive feature for income seeking investors. Companies that deliver it are likelier to have growing businesses and be financially robust. In the US, for example, we find that dividend growers have a higher average credit rating than the average company in the S&P 500. Companies with quality balance sheets and sustainable business models are appealing in today's advanced-cycle environment.

The performance of dividend growers over time has been strong. Both in the US and globally, such firms have outperformed broader equity benchmarks since 2001 - **figure 3**. To put it another way, \$1m invested in global dividend growers in 2001 would have become \$3.81m by 2019, compared to \$2.6m for global equities and \$3.1m for global high yielders. (Of course, past performance is no guarantee of future returns. Real results may vary.)

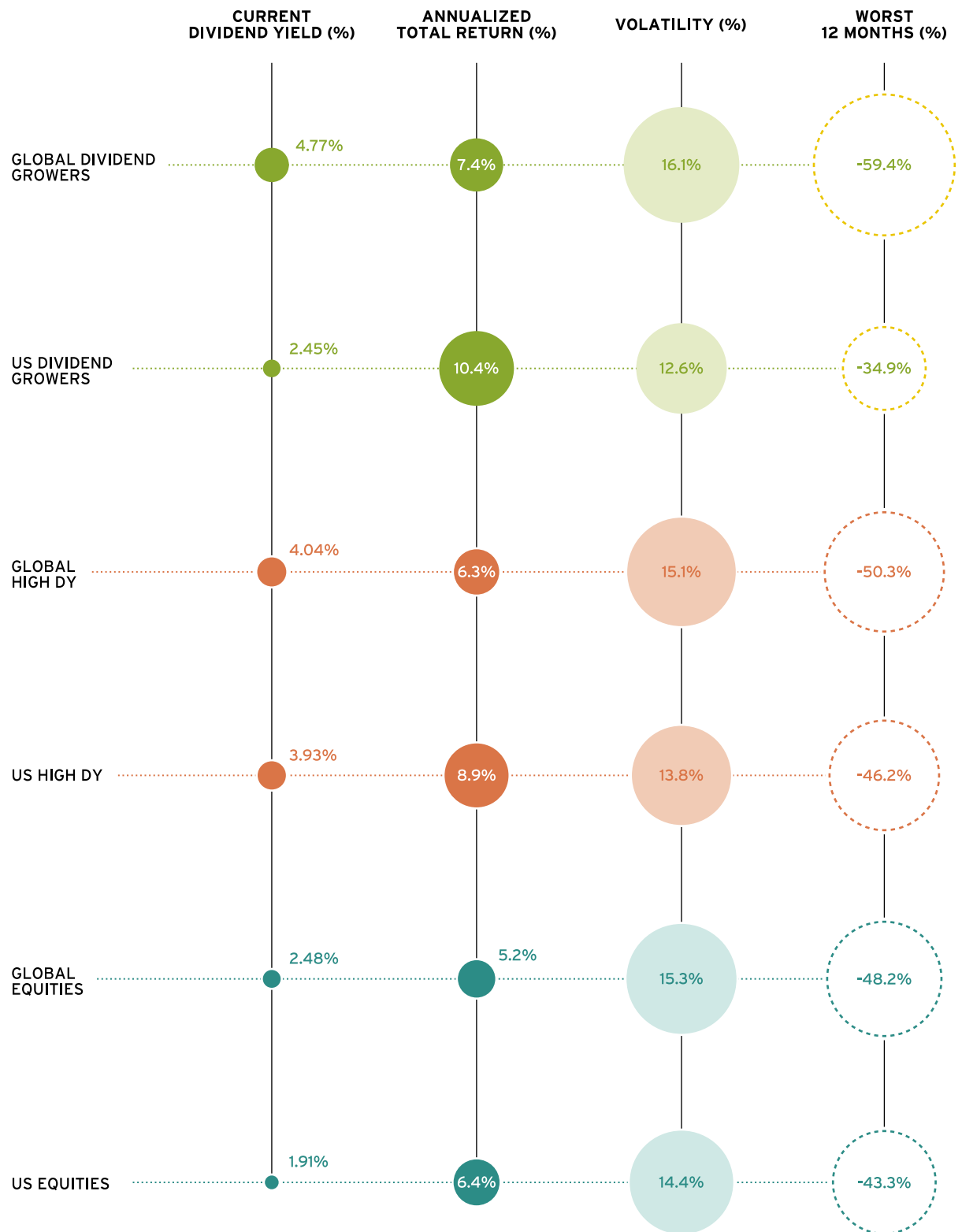
In the US - but not everywhere else - dividend growers have also proved less risky in various ways. Such equities as a group have been less volatile than the broader US stock market. Going back to 1990, they have suffered smaller annual losses during years when the broader market saw negative returns. Rather than focusing upon the US or any other national or regional market, though, our preferred approach is to invest in dividend growers globally. Portfolios that are highly concentrated in particular regions are more vulnerable to the turbulence that often occurs in the advanced stages of the business cycle and thereafter.

Despite their strong record over time, dividend growers have experienced periods of underperformance. There have even been times when dividend growers fell while equities in general rose. Bouts of dividend grower underperformance have tended to occur during strongly bullish phases for equities overall. Examples include the late 1990s tech boom, and more recently, 2015 and 2017. Our view is that, while we believe equities have upside potential in 2020, we do not expect strongly bullish conditions.

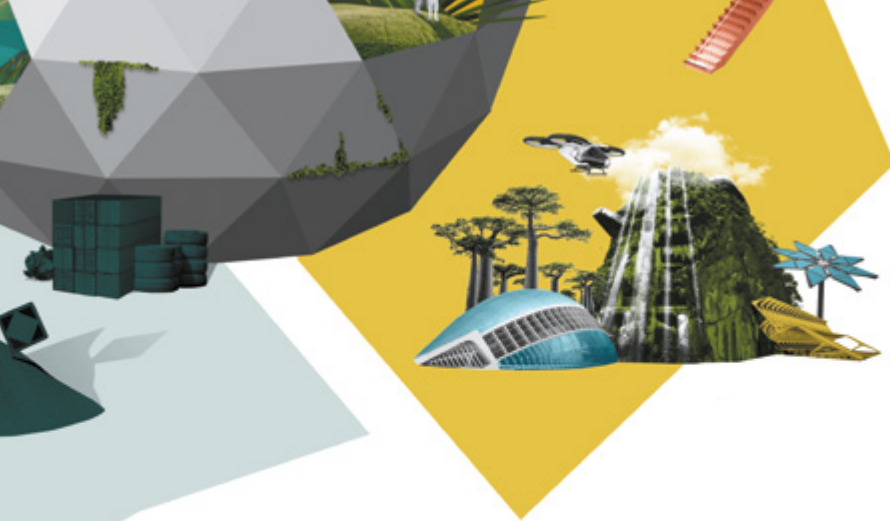
So, how might you allocate to dividend growers in your portfolio? We see a wide range of possibilities. The appropriate options for you will depend upon your particular objectives. Broad-based exposure can be achieved by a passive strategy that targets a dividend growth benchmark. That said, we favor strategies from active managers, whose stock selection ability could prove valuable in an advanced economic cycle environment and beyond. Customized portfolios of dividend grower equities from our own discretionary managers can also reflect your other priorities, such as ethical concerns. Meanwhile, capital markets strategies can help you target specific income outcomes in relation to dividend growers and other equities.

In the advanced stages of a long economic expansion, the value of dividend growers as a diversifier for fixed income portfolios and as part of an overall diversified investment strategy should not be ignored.

FIGURE 3. DIVIDEND GROWERS' RECORD



Source: Bloomberg and Haver as of 5 Nov 2019. Data from Jan 2001-Nov 2019. Global dividend growers are defined as the S&P Global Dividend Aristocrats Index; US dividend growers are defined as the S&P 500 Dividend Aristocrats Index. Global high dividend yield defined as the ACW High Dividend Index; Global equities defined as MSCI AC World Index; US equities defined as the S&P 500 Index. Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment. Past performance is no guarantee of future results. Real results may vary. See Glossary for definitions.



2.3 Earn income waiting for a bear market

IAIN ARMITAGE, GLOBAL HEAD OF CAPITAL MARKETS

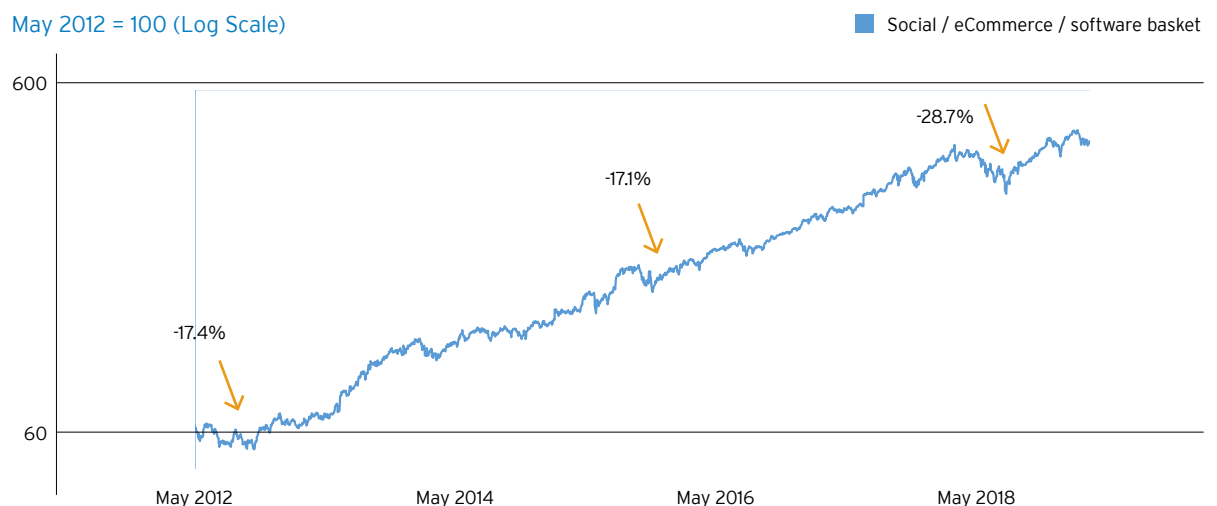
Over recent decades, dividend grower equities have outperformed equities as a whole. However, equities in sectors focused on cutting-edge technologies have also seen some strong gains. Companies in these areas have somewhat distinct features to dividend growers. Because their businesses have strong organic growth potential, such firms tend to reinvest their cashflows in their operations, rather than paying them out as

dividends. Their share prices are also typically more volatile. However, that volatility can provide the means to help earn a yield via a capital markets strategy. The volatility that one investor may seek to hedge away can be turned into a fixed income stream for another.

To learn more about the specifics of this strategy, please talk to your relationship team.

FIGURE 4. BUYING TECH GIANTS AFTER BIG FALLS

May 2012 = 100 (Log Scale)



Source: Haver as of 4 Sep 2019. Composite shown is an equally weighted basket of the largest US software, e-commerce, and social media equities. Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment. Past performance is no guarantee of future results. Real results may vary.

2.4 Where the bonds still have yield

KRIS XIPPOLITOS, GLOBAL HEAD OF FIXED INCOME STRATEGY

Despite an acute shortage of yield across global fixed income markets, there is still yield potential in certain parts of the bond market.

KEY MESSAGES

Seek out our favored fixed income assets that we believe have sustainable positive yields:

- US Treasuries and US investment grade corporates
- Longer-term municipal bonds
- High yield bonds and bank loans
- European preferred stocks
- External emerging market debt

Investors should not be complacent when it comes to their fixed income portfolios. Owning very low and negative yielding debt has hidden risks and, in the economic environment we expect, will not diversify portfolios as they have in the past. But while we believe that income seeking core portfolios should look beyond bonds, that does not mean we want investors to shun the asset class. Even in today's world of low and negative yielding bonds, there are a range of possibilities for seeking yield from fixed income assets.

These possibilities are reflected in our Global Investment Committee's (GIC) tactical positioning – see **Avoiding the madness of crowds**. The GIC is deeply underweight negative yielding bonds in local markets. At the same time, we recommend large overweights in high quality US dollar fixed income. For example, US Treasuries and US investment grade corporates offer some of the better yield opportunities in the world.

Given the slow growth and politically volatile environment we are now in, Citi Private Bank favors extending duration beyond cash in high quality bonds. Although policy rates seem to be on hold for now, risks remain which could drive them lower. Therefore, we believe that now is the time to lock in higher yields by investing in longer-maturity bonds. Our preferred market for duration extension is US investment grade (IG) corporate bonds, where yield curves are relatively less flat. At the same time, investors



are rewarded with wider spreads in longer maturities. For North American investors, longer-term municipal bonds still offer the best value, where taxable-equivalent yields well exceed those found in taxable corporates.

Another potential opportunity lies in better quality high yield (HY) bank loans. The 'all-in' yields - LIBOR plus a spread - for BB/B- rated sub-investment grade loans of around 6% looks comparatively attractive to other markets. Although HY loans tend to underperform HY bonds during periods of increasing risk appetite, loans typically experience half the price volatility - **figure 1**. Lower quality HY bonds do look somewhat cheaper. However, we would avoid CCC-rated debt - issued by vulnerable borrowers - as risks in this area are largely idiosyncratic, volatile, and likely to rise over time.

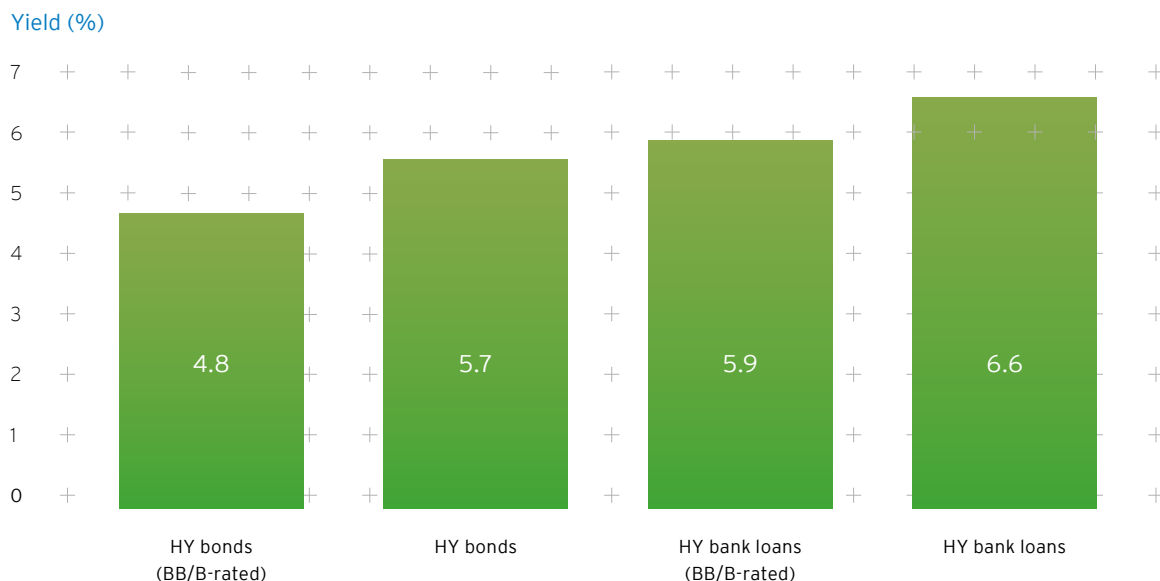
Overall, global dividend yields are above global bond yields. Preferred stocks - a hybrid of fixed income and equity - offer higher coupons and lower beta than common equity. Since the beginning of 2019, yield declines have supported double-digit gains in US bank preferred equities. Although preferreds have a positive correlation to equities, performance has a historical beta to the S&P 500 of only one-fifth of that of US bank equities. Similar to the US, European preferreds

have generated outsized returns. While valuations in US preferreds have become expensive, European bank preferreds - denominated in US dollars - still offer value. Yields around 5% are low by historical standards, but this equates to a spread pick-up of nearly 300 basis points (bp), or 75bp wider than BB-rated US high yield bonds.

Investors might also consider external emerging market (EM) debt. As developed market (DM) yields drop, the attractiveness of EM bonds increases. Average global EM US dollar aggregate benchmark yields at 5% are 360bp higher than DM yields of 1.4% and 440bp higher than non-US dollar DM yields. Latin America has the highest regional yield of around 8.5%, but also comes with higher volatility. By contrast, average Asia EM US dollar yields are closer to 3.5%, but offer more price stability. We stress the importance of global diversification when investing in EM, as there tend to be more idiosyncratic risks, as the recent case of Argentina emphasized. At the same time, those idiosyncratic episodes allow EM to offer attractive long-term risk-adjusted returns.

A further possibility we see lies in seeking to enhance yield by borrowing in low or negative yielding currencies to finance investments in higher yielding assets, which we explore in **Borrow cheaply and seek income**.

FIGURE 1. US HIGH YIELD BANK LOANS HAVE HIGHER 'ALL-IN' YIELDS



Source: Bloomberg Barclays, Bloomberg and The Yield Book as of 18 Nov 2019. Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment. Past performance is no guarantee of future results. Real results may vary.



2.5 Borrow cheaply and seek income

DAN O'DONNELL, GLOBAL HEAD OF CITI INVESTMENT MANAGEMENT ALTERNATIVES

KEN PENG, HEAD - ASIA INVESTMENT STRATEGY

JEFFREY SACKS, HEAD - EUROPE INVESTMENT STRATEGY

KRIS XIPPOLITOS, HEAD - GLOBAL FIXED INCOME STRATEGY

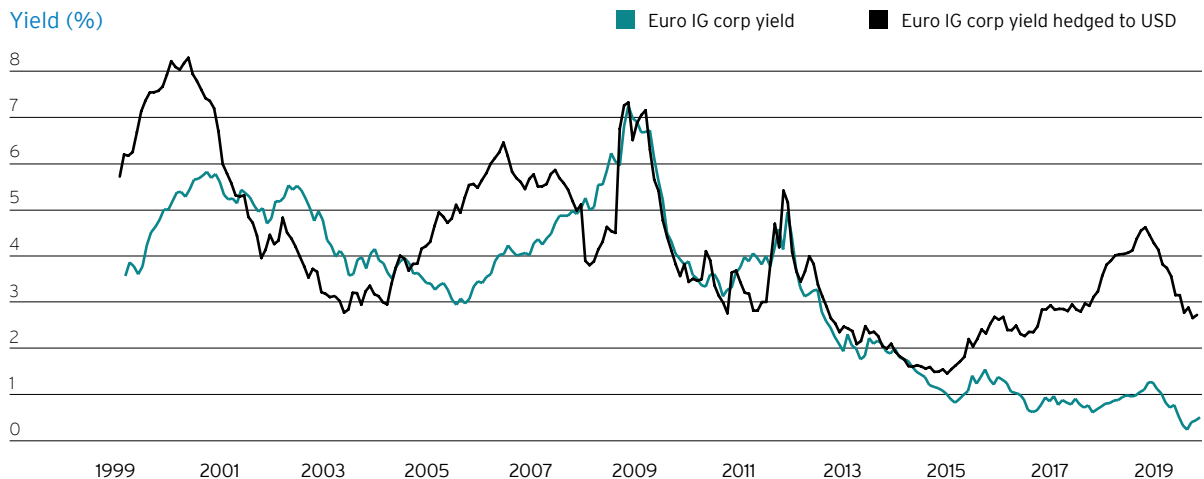
What should investors do when yields are low or negative? Such an environment creates opportunities to borrow cheaply and invest in higher yielding assets. There are many opportunities, including alternative asset classes.

KEY MESSAGES

We see a variety of ways in which investors can pursue 'positive carry' - the difference between low or even negative borrowing costs and higher portfolio returns. They include:

- US dollar hedged Euro credit
- Asian government and investment grade corporate debt in US dollars
- Asian high yield credit in US dollars
- Opportunistic private corporate credit managers
- Real estate secured credit

FIGURE 1. HIGHER YIELD PREMIA VIA CURRENCY HEDGING



Source: Haver, as of 20 Nov 2019 Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment. Index returns do not include any expenses, fees or sales charges, which would lower performance. For illustrative purposes only. Past performance is no guarantee of future results. Real results may vary.

For bondholders, the low interest rate environment undoubtedly poses a major challenge. But while global yields are low, ways to generate high levels of income still exist. For borrowers, low yields mean low borrowing costs. As such, it is possible to borrow at low rates in order to invest the proceeds in assets that can potentially generate a materially higher yield. Wide differentials between US and Eurozone rates also create opportunities in certain currency hedging strategies that seek positive carry.

Invest in US dollar hedged Euro credit

The average Eurozone investment grade (IG) corporate bond yield is 0.5%. When adjusting for the difference in market duration, Euro IG index yields are just one-tenth of those on US dollar corporates. Such low absolute yields are clearly not appealing to income-orientated investors. Most investors also do not typically treat their bond portfolios like equities, seeking capital gains as yields fall. As a result, our Global Investment Committee is deeply underweight low and negative yielding markets, including many in Europe – see **Our positioning in Avoiding the madness of crowds**.

Despite this, we still see possibilities for seeking yield in European corporate debt. This boils down to the difference in interest rates between the US and the Eurozone. The wide gap between positive US rates and negative Eurozone rates enables certain hedged strategies that target yield pick-up, but with limited currency risk.

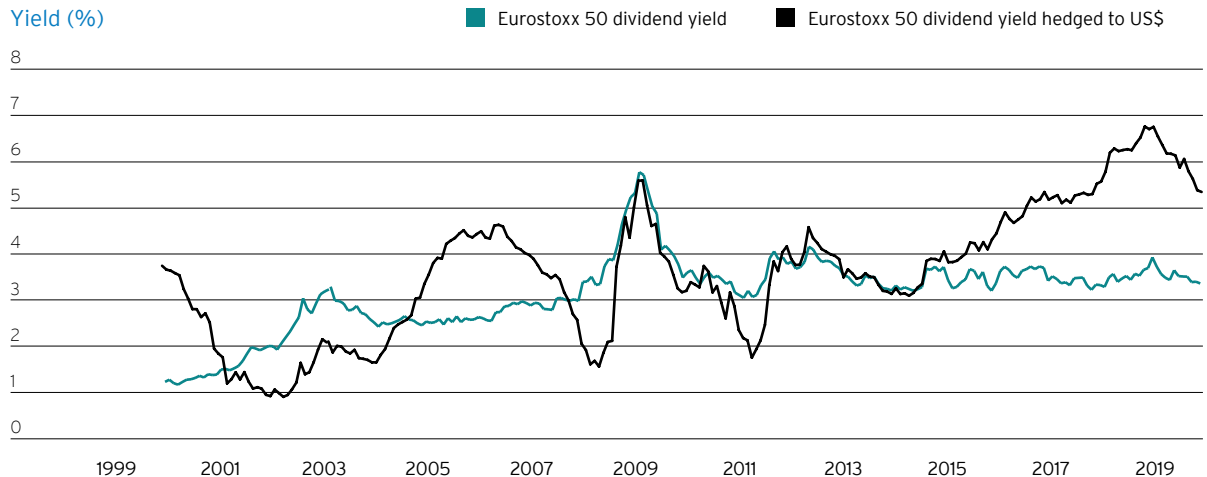
For example, some hedging strategies allow an investor to lock in an exchange rate today for a currency transaction on a future date. Typically, these strategies serve to hedge foreign currency payments against exchange rate volatility. Qualified investors today can utilize such strategies potentially to enhance Euro corporate bond yields and hedge their currency exposure.

Other asset exchange ideas

Owning individual European equities or bonds hedged into US dollars offers an unusually high yield premium compared to the past – **figures 1 and 2**. While derivative strategies can be complex by nature, fund managers may offer a simpler way to take advantage.

In some instances, certain mutual funds come in different share classes, denominated in different

FIGURE 2. DIVIDEND YIELD ENHANCEMENT VIA CURRENCY HEDGING



Source: Haver, as of 20 Nov 2019. Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment. Index returns do not include any expenses, fees or sales charges, which would lower performance. For illustrative purposes only. Past performance is no guarantee of future results. Real results may vary.

currencies. This can provide investors with an option to capture the return on the underlying investment, without the additional impact from movements in exchange rates. So, investing in a euro mutual fund via a US dollar share class could produce additional yield.

Exploit negative Eurozone interest rates

For Eurozone borrowers, bank financing does not always reflect negative rates. However, certain hedging strategies allow investors to take advantage. For example, a loan in another currency¹ (i.e., US dollars) supported by a hedge, enables an investor to benefit from negative Euribor. Proceeds could then be used to invest in higher yielding assets.

Pursue Asian yield pick-up potential

US dollar denominated bonds issued by Asian firms and government entities offer a good potential source of carry for fixed income investors. For investment grade (IG), the average yields are about 3%, which is between 10 and 40 basis points (bp) higher than US corporate yields

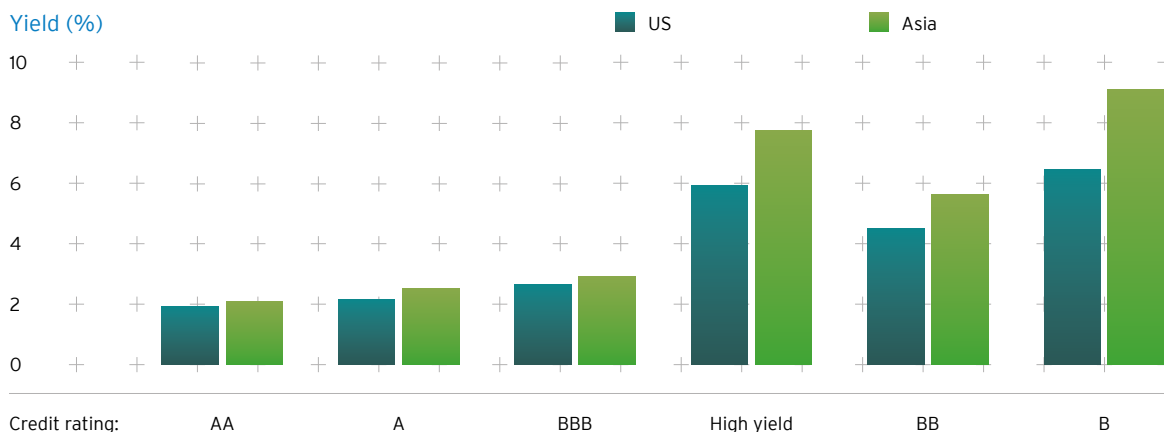
with similar rating and duration. For Asian dollar high yield (HY) credit, the carry potential is much greater. Average yields are about 8%, or 200bp above those of equivalent US corporate HY yields – **figure 3**. This is despite strong returns in 2019 so far. As of 7 October, Asian IG and HY bonds had both delivered returns of around 11%, slightly exceeding their US counterparts.

Aside from attractive yields, we see other fundamental reasons why US dollar Asian IG and HY bonds could continue to do well. First, supply may tighten somewhat in 2020. Net issuance of dollar corporate bonds in the region hit a record of \$77.2bn in just the first nine months of 2019. These funds help companies repay maturing bonds in 2020 and reduce the need for additional issuance, thereby curbing refinancing risk. Monetary easing in various countries in Asia ex-Japan may continue, which could also boost their relative appeal. We also expect the default rate in China – a concern for many investors in recent years – to stay under control, as policy easing offsets liquidity and growth risks.

Among the areas of dollar denominated Asian fixed income we favor are state-owned sectors, such as various Chinese and Indonesian names. We continue to prefer medium to long duration IG as well as short duration HY within a diversified fixed

¹ All loans are subject to credit approval.

FIGURE 3. GREATER YIELD PICK-UP POTENTIAL IN ASIAN HIGH YIELD



Source: Bloomberg Barclays, Bloomberg and The Yield Book. An investor cannot invest directly in an index. They are shown for illustrative purposes only and do not represent the performance of any specific investment. Index returns do not include any expenses, fees or sales charges, which would lower performance. For illustrative purposes only. Past performance is no guarantee of future results. Real results may vary.

income portfolio. By contrast, we see Chinese real estate, Indian financials, and Korean industrials as rather riskier. Local currency bonds - mainly sovereigns and quasi-sovereigns - may also offer significant carry potential. The drawbacks, however, include currency fluctuations and expensive hedges. Indonesia, India, Malaysia, and

the Philippines have the highest real sovereign yields as well as scope for local interest rates to fall further. But the risk of currency volatility remains high as trade and geopolitical risks loom in 2020. Hedging the local currency risk is expensive given higher cost of borrowing the local currencies.

2.6 Seek carry from illiquid managers

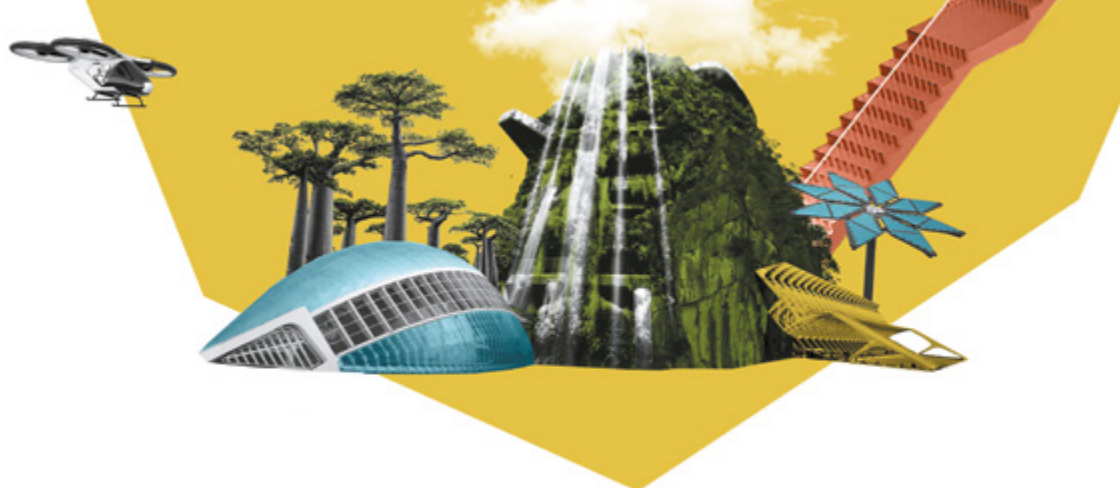
DAN O'DONNELL, GLOBAL HEAD OF CITI INVESTMENT MANAGEMENT ALTERNATIVES

Some of the biggest beneficiaries of the low and lower interest rate environment since the 2008 financial crisis have been alternative managers in private equity and real estate. Their businesses and assets have benefited by being able to borrow readily and cheaply in order to finance their acquisitions. We expect these conditions to persist for several years to come.

In private equity and real estate, Citi Private Bank identifies various experienced investment managers who borrow in order to buy credit assets or properties and who subsequently make distributions of income to their investors over time. Admittedly, such distributions are

not the same as the yield from bonds. That is because they may only be paid intermittently, so as to give the manager more flexibility to use those funds to pursue other investment opportunities. Also, the distribution potential comes at a cost of illiquidity, since private equity and real estate investments cannot be readily sold prior to the end of their scheduled lifetimes.

The pool of potential alternative investment opportunities has grown in recent years. Since the global financial crisis, there has been a large increase in the amount of non-investment grade debt. The total size of the US BBB-rated public loan market has increased from \$730bn



pre-crisis to \$3tn today. This has created a large inventory of credit assets, some of which might get caught up in future market stress. In the domain of private loans, middle-market lending since 2009 has swelled from \$40bn to \$900bn today, yet still enjoys a spread of over 100 basis points (bp) over the large syndicated loan market.² The increase in debt issuance has also been accompanied by looser underwriting standards, fewer lender protections, and greater loan loss risk, so manager quality is a key component when pursuing the opportunities that follow.

Opportunistic private corporate credit managers

Certain private equity managers pursue opportunistic credit strategies across public and private assets to take advantage of gaps created by the standardization in traditional markets. Many of the credit securities they invest in have relatively attractive yields because they target opportunities that do not fit within traditional liquid credit strategies. One key part of these managers' strategies involves buying stressed assets during difficult times. During market turmoil, many managers of liquid credit funds find themselves forced into selling assets. That is because they are required to maintain a certain level of credit quality in their portfolios or because they have to sell assets to meet investor redemption demands. By contrast, the private managers we favor do not face the same constraints. As such, they can often purchase these distressed assets opportunistically at

depressed prices from forced sellers, with the potential for higher returns. These strategies will typically generate some yield, but prioritize strategic flexibility over cash yield.

Real estate secured credit

In real estate, we continue to focus on strategies that can generate attractive current yields relative to fixed income strategies. For example, we favor managers that target junior real estate debt secured by core real estate assets. These strategies generally underwrite unitranche loans – hybrid loan structures that combine senior debt and subordinated debt into one loan – and syndicate the senior portions to create an attractive yield profile, while still remaining secured with loan-to-value levels below 70%. These strategies aim to seek yields of between 9% and 10% for investors once fully deployed. We believe the yield pick-up compensates investors for the increase in risk and illiquidity.

A low interest rate environment is beneficial to the broad private equity and real estate markets. Core allocations with low liquidity needs can be invested in either private equity and real estate credit strategies that balance risk and reward by investing higher in the capital structure, benefiting from income and potential structural protection, while maintaining optionality to take advantage of distressed markets. The lack of liquidity in private markets may provide opportunity for those willing and able to assume illiquidity risk.

2 S&P Global Market Intelligence

Currency Risk—One currency may decline in value versus another. The value of a multi-currency portfolio will fluctuate with exchange rates. Alternative investments referenced are speculative and entail significant risks that can include losses due to leveraging or other speculative investment practices, lack of liquidity, volatility of returns, restrictions on transferring interests in the fund, potential lack of diversification, absence of information regarding valuations and pricing, complex tax structures and delays in tax reporting, less regulation and higher fees than mutual funds and advisor risk.

ASSET CLASS DEFINITIONS

Cash is represented by US 3-month Government Bond TR, measuring the US dollar-denominated active 3-Month, fixed-rate, nominal debt issues by the US Treasury.

Commodities asset class contains the index composites – GSCI Precious Metals Index, GSCI Energy Index, GSCI Industrial Metals Index, and GSCI Agricultural Index – measuring investment performance in different markets, namely precious metals (e.g., gold, silver), energy commodity (e.g., oil, coal), industrial metals (e.g., copper, iron ore), and agricultural commodity (i.e., soy, coffee) respectively. Reuters/ Jeffries CRB Spot Price Index, the TR/CC CRB Excess Return Index, an arithmetic average of commodity futures prices with monthly rebalancing, is used for supplemental historical data.

Emerging Markets (EM) Hard Currency Fixed Income is represented by the FTSE Emerging Market Sovereign Bond Index (ESBI), covering hard currency emerging market sovereign debt.

Global Developed Market Corporate Fixed Income is composed of Bloomberg Barclays indices capturing investment debt from seven different local currency markets. The composite includes investment grade rated corporate bonds from the developed-market issuers.

Global Developed Market Equity is composed of MSCI indices capturing large-, mid- and small-cap representation across 23 individual developed-market countries, as weighted by the market capitalization of these countries. The composite covers approximately 95% of the free float-adjusted market capitalization in each country.

Global Developed Investment Grade Fixed Income is composed of Barclays indices capturing investment grade debt from twenty different local currency markets. The composite includes fixed-rate treasury, government-related, and investment grade rated corporate and securitized bonds from the developed-market issuers. Local market indices for US, UK and Japan are used for supplemental historical data.

Global Emerging Market Fixed Income is composed of Barclays indices measuring performance of fixed-rate local currency emerging markets government debt for 19 different markets across Latin America, EMEA and Asia regions. iBoxx ABF China Govt. Bond, the Markit iBoxx ABF Index comprising local currency debt from China, is used for supplemental historical data.

Global High Yield Fixed Income is composed of Barclays indices measuring the non-investment grade, fixed-rate corporate bonds denominated in US dollars, British pounds and Euros. Securities are classified as high yield if the middle rating of Moody's, Fitch, and S&P is Ba1/BB+/BB+ or below, excluding emerging market debt. Ibbotson High Yield Index, a broad high yield index including bonds across the maturity spectrum, within the BB-B rated credit quality spectrum, included in the below-investment grade universe, is used for supplemental historical data.

Hedge Funds is composed of investment managers employing different investment styles as characterized by different sub categories – HFRI Equity Long/Short: Positions both long and short in primarily equity and equity derivative securities; HFRI Credit: Positions in corporate fixed income securities; HFRI Event Driven: Positions in companies currently or prospectively involved in wide variety of corporate transactions; HFRI Relative Value: Positions based on a valuation discrepancy between multiple securities; HFRI Multi Strategy: Positions based on realization of a spread between related yield instruments; HFRI Macro: Positions based on movements in underlying economic variables and their impact on different markets; Barclays

Trader CTA Index: The composite performance of established programs (Commodity Trading Advisors) with more than four years of performance history.

High Yield Bank Loans are debt financing obligations issued by a bank or other financial institution to a company or individual that holds legal claim to the borrower's assets in the event of a corporate bankruptcy. These loans are usually secured by a company's assets, and often pay a high coupon due to a company's poor (non-investment grade) credit worthiness.

Private Equity characteristics are driven by those for Developed Market Small-Cap Equities, adjusted for illiquidity, sector concentration, and greater leverage.

INDEX DEFINITIONS

The **Bloomberg Barclays Global Aggregate Bond Index** is a flagship measure of global investment grade debt from twenty-four local currency markets. This multi-currency benchmark includes treasury, government-related, corporate and securitized fixed-rate bonds from both developed and emerging markets issuers.

The **Bloomberg-JP Morgan Asia Currency Index** is designed as a spot index of the most actively traded currency pairs in Asia's emerging markets valued against the US dollar.

The **Bloomberg JP Morgan Latin American Currency Index** represents Latin America's currency markets on an aggregate basis. It is a spot index of Latin America's most actively traded currency pairs valued against the US dollar, whose composition is based primarily on trade weights, with an added liquidity filter.

The **CSI 300** is a capitalization-weighted stock market index designed to replicate the performance of top 300 stocks traded in the Shanghai and Shenzhen stock exchanges. It was considered as a blue chip index for mainland China stock exchanges

Citi US Broad Investment Grade Index (USBIG)–Corporate, is a subsector of the USBIG. The index includes fixed rate US dollar denominated investment grade corporate debt within the finance, industrial and utility sectors. This index includes US and non-US corporate securities (excludes US government-guaranteed and non-US sovereign and provincial securities).

Citi Emerging Markets Sovereign Bond Index includes local currency sovereign bond indices for 14 emerging markets countries. These indices comprise fixed-rate sovereign debt with at least one-year until maturity. They are market capitalization-weighted and rebalanced monthly for Brazil, Chile, Colombia, Hungary, Indonesia, Malaysia, Mexico, Peru, Philippines, Poland, Russia, Thailand, Turkey, and South Africa.

The **Citi Euro Broad Investment Grade Index** is a multi-asset benchmark for Investment grade, Euro-denominated fixed income bonds. It includes government, government-sponsored, collateralized, and corporate debt.

Citi's US High Yield Market Index is a US dollar-denominated index which measures the performance of high yield debt issued by corporations domiciled in the US or Canada. Recognized as a broad measure of the North American high-yield market amongst all Citi's fixed income indices, it includes cash-pay and deferred-interest securities. All the bonds are publicly placed, have a fixed coupon, and are non-convertible.

The **Citi World Broad Investment Grade Index** is a multi-asset, multicurrency benchmark which provides a measure of the global fixed income markets.

The **Euro Stoxx 50 Index** is a blue-chip index for the Eurozone, provides a blue-chip representation of supersector leaders in the region. The index covers fifty stocks from eleven Eurozone countries.

The **FTSE All-World Index** is a stock market index representing global equity performance that covers over 3,100 companies in 47 countries starting in 1986.

The **MSCI Emerging Markets Index** captures large- and mid- cap representation across twenty-four Emerging Markets (EM) countries. With 837 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.

The **MSCI Emerging Markets (EM) Latin America Index** captures large and mid-cap representation across five Emerging Markets (EM) countries in Latin America. With 113 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.

The **MSCI World Index** represents the performance of more than 1,600 large- and mid-cap stocks across 23 developed markets countries. The index covers approximately 85% of the free float-adjusted market capitalization in each country.

The **MSCI World ex-USA Index** represents the performance of large and mid-cap representation across 22 of 23 developed markets countries excluding the United States. With 1,005 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.

The **S&P 500 Index** is a capitalization-weighted index that includes a representative sample of 500 leading companies in leading industries of the US economy. Although the S&P 500 focuses on the large-cap segment of the market, with over 80% coverage of US equities, it is also an ideal proxy for the total market.

The **S&P 1500 Index** combines three leading indices, the S&P 500, the S&P MidCap 400, and the S&P SmallCap 600, to cover approximately 90% of US market capitalization. It is designed for investors seeking to replicate the performance of the US equity market or benchmark against a representative universe of tradable stocks.

The **S&P 500 Fossil Fuel Free Index** is designed to measure the performance of companies in the S&P 500 that do not own fossil fuel reserves. Fossil fuel reserves are defined as economically and technically recoverable sources of crude oil, natural gas and thermal coal.

The **S&P Global Dividend Aristocrats** is designed to measure the performance of the highest dividend yielding companies within the S&P Global Broad Market Index (BMI) that have followed a policy of increasing or stable dividends for at least ten consecutive years.

The **U.S. Dollar Index (DXY)** is an of the value of the US dollar relative to a basket of major US trade partners' currencies.

OTHER TERMINOLOGY

Adaptive Valuations Strategies is Citi Private Bank's own strategic asset allocation methodology. It determines the suitable long-term mix of assets for each client's investment portfolio. Correlation is a statistical measure of how two assets or asset classes move in relation to one another. Correlation is measured on a scale of 1 to -1. A correlation of 1 implies perfect positive correlation, meaning that two assets or asset classes move in the same direction all of the time. A correlation of -1 implies perfect negative correlation, such that two assets or asset classes move in the opposite direction to each other all the time. A correlation of 0 implies zero correlation, such that there is no relationship between the movements in the two over time.

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LIBOR - The London interbank offered rate is the rate of interest at which banks offer to lend funds to each other. It is used as a reference rate for large amounts of financial contracts.

Price-to-book ratio (P/B) compares the capitalization of an individual stock or of an index of stocks to the value of that stock or that index's combined shareholder capital. It is calculated by dividing the current closing price of the stock by the most recently reported book value per share. A low P/B can indicate a lowly-valued company or index, while a high P/B can indicate high valuation.

Price-earnings ratio (P/E) measures a company's or an index of companies' current share price relative to its earnings per share. A low P/E can indicate a lowly-valued company or index, while a high P/E can indicate high valuation.

Return on equity (ROE) is the amount of net income earned as a percentage of shareholders equity. It captures a company's profitability - or aggregate profitability among numerous companies - by showing how much profit is achieved with shareholders' capital.

Strategic asset allocation is the process of creating a long-term investment plan by assembling an appropriate mix of equities, fixed income, cash and other investments. It can potentially enhance portfolio returns and help manage risk. Strategic Return Estimates are Citi Private Bank's forecast of returns for specific asset classes over a 10-year time horizon. The forecast for each specific asset class is made using a proprietary methodology that is appropriate for that asset class. Equity asset classes are forecast using a proprietary methodology based on the calculation of valuation levels with the assumption these valuation levels revert to their longterm trends over time. Fixed Income asset classes are forecast using a proprietary methodology based on current yield levels. Other asset classes have other specific forecasting methodologies. Please note that hedge funds, private equity, real estate, structured products and managed futures are generally illiquid investments and are subject to restrictions on transferability and resale. Each SRE is gross of actual client fees and expenses. Components of the methodology used to create the SREs include the rate of return for various asset classes based on indices. Termination and replacement of investments may subject investors to new or different charges. Past performance is not indicative of future results. Future rates of return cannot be predicted with certainty. Investments that pay higher rates of return are often subject to higher risk and greater potential loss in an extreme scenario. The actual rate of return on investments can vary widely over time, especially for long-term investments. This includes the potential loss of principal on your investment. It is not possible to invest directly in an index.

Tactical asset allocation looks to adjust the strategic asset allocation of a client's investment portfolio to incorporate shorter-term market insights.

Volatility - is a statistical measure of the variation of returns for a given security, market index, or asset class. It is most often measured by way of standard deviation. The higher the volatility, the riskier the underlying asset is considered to be.

Yield-to-Maturity (YTM) is the total return received on a bond or index of bonds when held to maturity. The total return includes both the payment of coupons and the return of the principal at maturity.

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Bond rating equivalence

Alpha and/or numeric symbols used to give indications of relative credit quality. In the municipal market, these designations are published by the rating services. Internal ratings are also used by other market participants to indicate credit quality.

Bond credit quality ratings	Rating agencies		
	Moody's ¹	Standard and Poor's ²	Fitch Ratings ²
Investment Grade			
Highest quality	Aaa	AAA	AAA
High quality (very strong)	Aa	AA	AA
Upper medium grade (Strong)	A	A	A
Medium grade	Baa	BBB	BBB
Not Investment Grade			
Lower medium grade (somewhat speculative)	Ba	BB	BB
Low grade (speculative)	B	B	B
Poor quality (may default)	Caa	CCC	CCC
Most speculative	Ca	CC	CC
No interest being paid or bankruptcy petition filed	C	D	C
In default	C	D	D

1 The ratings from Aa to Ca by Moody's may be modified by the addition of a 1, 2, or 3 to show relative standing within the category.

2 The ratings from AA to CC by Standard and Poor's and Fitch Ratings may be modified by the addition of a plus or a minus to show relative standing within the category.

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MBS are also sensitive to interest rate changes which can negatively impact the market value of the security. During times of heightened volatility, MBS can experience greater levels of illiquidity and larger price movements. Price volatility may also occur from other factors including, but not limited to, prepayments, future prepayment expectations, credit concerns, underlying collateral performance and technical changes in the market.

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