Risk & Reward
Research and investment strategies
Global editorial committee
At Invesco, we're dedicated to delivering an investment experience that helps people get more out of life. In fact, our entire firm has been built over many years with a single focus: to help clients achieve their investment objectives.

We are high-conviction investment managers who aim to deliver strong, long-term investment performance through a comprehensive range of capabilities. These active and factor-based investment capabilities are provided through a broad range of diverse investment vehicles to enable key outcomes that help our clients around the world achieve their investment objectives.

Our active and factor-based investment strategies aim to deliver client outcomes that we believe go beyond the limitations of traditional benchmark-centric active management and traditional passive investing. In our view, this high-conviction approach provides better tools to analyze and build portfolios in a more precise and impactful way.

In the past few years, we've seen rising interest in passive and factor-based investing as a complement to active investing. Invesco has been an innovative leader in factor investing for more than 40 years, and is privileged to manage more than USD 150 billion in assets for clients around the world (April 2016).

We have an enviable track record of delivering diverse, time-tested investment strategies to meet a variety of investor needs. Factor-based smart beta strategies have been included in our products in the US since 1975. Our Quantitative Strategies team has been delivering factor-based strategies since 1983. And our PowerShares team has been a factor-based smart beta pioneer since 2003. In fact, over the past 13 years, Invesco has created one of the most comprehensive ranges of smart beta and factor ETFs in the industry – spanning equities, fixed income and alternatives. As part of our commitment to factor-based investing, we recently launched the Factor Investing Council to provide investors with the latest in thought leadership and market intelligence relating to factor-based investment strategies. We have also published the results of our comprehensive survey of over 60 institutional clients across the world regarding their views on factor-based investing.

Our leadership in factor investing and smart beta reflects the depth of our experience and our expertise, which contributes to our continuing innovation – all of which helps us meet our clients' constantly evolving needs.

Factor investing can be a powerful tool when building client portfolios designed to meet key outcomes. We've devoted this issue of Risk & Reward to showing how investors are using factor investing strategies to achieve their investment objectives, including environmental, social and governance objectives. We hope you find this information helpful, and remain focused as always on helping clients meet their investment objectives.

Regards,

Marty Flanagan
President and CEO of Invesco Ltd.
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In brief
The performance of individual securities and asset classes can largely be explained by their systematic exposure to quantifiable investment themes. These “factors” include value, momentum, quality, and size, among others. The rapidly growing space of factor investing is based on the approach of explicitly allocating directly into a portfolio of these factors using tradable securities merely as instruments to achieve broad and diversified exposure. Depending on investors’ preferences, they might choose an active or a passive approach, based on a single-factor or a multi-factor strategy. Regardless of the implementation chosen, holding a diversified, well-balanced portfolio of factors aims to reduce risk and deliver a smoother return stream.
In recent years, factor-based investing has become ever more popular among investors seeking precise and systematic solutions. We give an overview of the concept, describe its history and highlight popular factors. Finally, we contrast active with passive, as well as multi-factor with single-factor concepts.

A substantial body of academic research, coupled with advancements in data collection and processing, has expanded investors’ understanding of the key factors historically affecting risk and return. Moreover, the introduction of specific indexes and ETFs, alongside the offerings of active quantitative managers, now provide an array of options for investors to implement these factors in their portfolios. Estimates put the current total assets under management in “factor” or “smart beta” strategies, as they are often referred to, at USD 1.2 trillion.1

Style factors, macro factors...
At the most fundamental level, “factors” can be described as quantifiable characteristics of assets. They include: value, size, momentum, volatility and quality. Some researchers distinguish between risk and return factors, with return factors explaining long-term returns and risk factors explaining their variability. However, we prefer to view risk-return on a continuum. Consequently, we refer to both risk and return factors as “style factors” (figure 1).

While style factors are often discussed in the context of equity portfolios, they can also be used for other asset classes. For example, value corresponds to assets trading attractively relative to intrinsic value as measured by price to book in equities and term premium (the current yield versus future expected yield) in bonds.

In addition, there are “macro factors”, such as growth and inflation. These are especially well-suited for spanning asset classes, as different asset classes have different macro factor sensitivities. For example, investors often associate lower average returns with bonds as compared to equities. But that is not necessarily true. A factor investor would say that bonds have a lower exposure to the growth factor, which often drives equity returns.

...and factor investing
Essentially, factor investing means allocating a portfolio to style and macro factors in an effort to achieve particular investment objectives. Similar to more traditional investment processes, factor investing involves taking positions in individual assets. But, unlike more traditional approaches focusing on security selection, a factor approach makes use of tradable securities, such as stocks and bonds, to achieve broad and diversified exposure to specific investment themes.

A look back in time
The origins of factor investing are largely academic in nature. The first milestone is the seminal work of Sharpe (1964). His “market model” separates the market factor beta from the stock-specific alpha. The “three factor model” of Fama and French (1993) extends this approach to include both size and value (defined as price-to-book ratio) as additional

Figure 1
What is a factor? Macro and style factors

Macro factors
<table>
<thead>
<tr>
<th>Economic</th>
<th>Inflation</th>
<th>Political</th>
<th>Currencies</th>
<th>Credit</th>
<th>Real rates</th>
<th>Liquidity</th>
</tr>
</thead>
</table>

Style factors
| Value | Low size | Momentum | Low volatility | Dividend yield | Quality |

Source: Invesco. For illustrative purposes only.
explanatory variables. A few years later, Carhart (1997) introduced the momentum factor, to form what is now known as “the four factor model”. It explains stock returns with the four factors: market, size, value and momentum. In practice, quantitative portfolio managers have used variants of the four-factor model to manage money for quite some time. In fact, Invesco is one of the pioneers in this space and has been investing via factor models since 1983.

More recently, in a study for the Norwegian Government Pension Fund (GPFG), Ang, Goetzmann and Schaefer (2008) give an idea of different factors used in the multi-asset space. Ang, Goetzmann and Schaefer also point out that over two-thirds of Norway’s sovereign wealth fund’s performance was driven by exposure to systematic factors. This suggests a paradigm shift away from allocation by asset class, toward allocation by factor.

While it may be some time before investors broadly and holistically reframe their investment problem to focus on factors similar to GPFG, the study has created renewed interest in the idea that portfolio return and risk can be largely explained by factor exposures, whether intended or not. And, given that investors are exposed to factors, they would benefit from a better understanding of them. Once this achieved, they may consider actively investing in factors for two reasons: to generate factor return (figure 3) and to manage factor risk.

Factors vs. fundamentals
The factor-based approach is often set in contrast to a “fundamental” approach, which implies that factor investing is not fundamentally based - something of a misconception. Many, if not most, widely used factors, such as: value, momentum or quality, rely

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**Figure 2**
The origins of factor investing

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>Launch of first quantitative strategies</td>
</tr>
<tr>
<td>1964</td>
<td>Separation of beta and alpha</td>
</tr>
<tr>
<td>1964</td>
<td>Building on Markowitz’s mean variance analysis</td>
</tr>
<tr>
<td>1964</td>
<td>Sharpe, Lintner and Mossin developed the Capital Asset Pricing Model (CAPM)</td>
</tr>
<tr>
<td>1972</td>
<td>Low volatility</td>
</tr>
<tr>
<td>1972</td>
<td>Haugen and Heinz showed that low volatility stocks realized extra risk-adjusted returns</td>
</tr>
<tr>
<td>1976</td>
<td>Size</td>
</tr>
<tr>
<td>1976</td>
<td>Launch of the first index mutual fund</td>
</tr>
<tr>
<td>1981</td>
<td>Value</td>
</tr>
<tr>
<td>1981</td>
<td>Basu finds that low PE stocks generated higher returns relative to high PE stocks</td>
</tr>
<tr>
<td>1983</td>
<td>Invesco Quantitative Strategies</td>
</tr>
<tr>
<td>1983</td>
<td>Launch of first quantitative strategies</td>
</tr>
<tr>
<td>1993</td>
<td>Size and value</td>
</tr>
<tr>
<td>1993</td>
<td>Fama and French developed 3-factor model by adding size and value to the market factor</td>
</tr>
<tr>
<td>1993</td>
<td>Momentum</td>
</tr>
<tr>
<td>1993</td>
<td>Jagadeesh and Titman find that buying past winners and selling past losers was highly profitable</td>
</tr>
<tr>
<td>1997</td>
<td>Carhart developed 4-factor model</td>
</tr>
<tr>
<td>2003</td>
<td>First smart beta ETF launched</td>
</tr>
<tr>
<td>2008</td>
<td>Norges Bank Investment Management review approach to active management (Ang, Goetzman &amp; Schaefer)</td>
</tr>
</tbody>
</table>

---

**Figure 3**
Why would we expect to earn a factor premium?

<table>
<thead>
<tr>
<th>Risk premiums</th>
<th>Behavioural rationales</th>
<th>Market structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>For bearing additional risk over the broad equity market e.g. an undesirable return pattern</td>
<td>Markets are inefficient due to behavioural biases of participants</td>
<td>Markets may be inefficient because of restrictions and limitations</td>
</tr>
</tbody>
</table>

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Source: Invesco. For illustrative purposes only.
on the same fundamental investment themes used by more traditional asset managers. Some would argue that these drivers take advantage of behavioural anomalies, creating exploitable market inefficiencies. Others would counter that factor returns reflect premia for additional risk over the broad market. In either case, similar to most traditional asset management concepts, factor models require a strong investment rationale. So, the real difference between a factor-based approach and a more traditional one is not the nature of the investment themes, but the way they are implemented in a portfolio. Whereas traditional or “fundamental” managers typically rely on bottom-up selection and careful investigation into the current state of each company, factor investing delivers transparent, structured and disciplined operationalization of traditional investment themes.

Similar to a more traditional/fundamental approach, the factor-based approach is also highly research intensive, but the research tends to be longer term, focused on identifying the underlying return and risk drivers and heavily reliant on statistical evidence. By focusing on factor exposures, rather than individual names, portfolios are built to systematically harvest factor premia.

**A few examples**

To better understand how this works, let us consider specific examples of style and macro factors.

“Momentum” is a common style factor; it refers to the phenomenon that assets with positive (negative) returns in the past, tend to also have positive (negative) returns in the future. There is a very good reason for this: Peter Lynch, the legendary “fundamental” manager of Fidelity’s Magellan Fund, has said that investors tend to “trim the flowers and water the weeds”. In other words, they sell winners too early and hold onto losers for too long. Such behaviour leads to incomplete price discovery and – ultimately – price trends, i.e. “momentum”.

“Growth”, on the other hand, is an important macro factor: since World War II, in periods with increasing GDP growth, stocks have had a significantly higher Sharpe ratio than bonds. Therefore, a portfolio with a large equity allocation relative to bonds is significantly exposed to growth factor risk, and has typically been rewarded with higher returns in these periods.

Other macro factors include inflation, currency appreciation/depreciation or even policy rate changes, all of which help to explain how multi-asset portfolios performed in various economic environments.

**Active vs. passive?**

An important question is whether implementation of factor investing should be passive or active. Exposure to factors can be achieved either way, and the implementation is largely a function of investors’ objectives, preferences and budgets. Passive factor-based strategies are often labelled “smart beta”, and are commonly implemented via exchange-traded funds (ETFs). These strategies seek an enhanced risk-return profile by using factor-based indexes, instead of a traditional cap-weighted one. These “smart” indexes tend to use factor definitions that are standard, stable and have been widely used and well-established in academic literature. Investors in passive strategies expect consistency of the methodology and complete transparency with respect to both index construction and holdings.

Alternatively, active factor-based strategies are frequently offered by quantitative arms of asset management firms. They rely heavily on teams of researchers and portfolio managers, who leverage proprietary factors and sophisticated portfolio construction techniques evolving over time. Clients are often large, institutional investors who are willing to forego complete transparency in return for a more customized and sophisticated approach to delivering factor exposures.

Overall, passive factor investing allows investors to access well-established factors in an efficient, relatively low cost and transparent manner, while active factor investing offers exposure to dynamic, proprietary factors, which are carefully combined to seek alpha and diversify risk. Both methods represent different – but effective – ways to implement factors within a portfolio. The specific implementation will depend on the client.

**Single-factor vs. multi-factor?**

Both active and passive approaches can be implemented by combining factors into multi-factor solutions, or by targeting single factors such as low volatility or value. However, passive approaches have
tended to utilize a single-factor framework while active approaches are more commonly implemented as multi-factor. Single-factor exposures provide targeted building blocks for investors to create custom factor blends, while multi-factor solutions attempt to balance factor exposures holistically on the investor’s behalf.

In principle, for investors with absolutely no exposures to style and macro factors, the solution could be to employ a multi-factor model with sophisticated portfolio construction techniques and careful risk control. In practice, many clients will already have some exposure to factors, but unless their factor investments have been intentional, their portfolios are unlikely to have an ideal factor balance.

Simply adding a multi-factor-based strategy to an existing portfolio with inappropriate factor tilts may not be the perfect solution. A process of “factor completion” could be more appropriate. Various techniques are available to complete one’s factor exposures, from a simple combination of multiple single-factor portfolios, to a sophisticated, holistic implementation providing optimal factor blends. Such portfolio rebalancing can be performed within a single asset class or across multiple asset classes. In the extreme, an investor will change his/her view of the world – from one in which investments are allocated across assets and securities to one in which he/she allocates into the underlying factors that drive security and asset class returns.

**Conclusion**

Factors are investments, and, as with other investments, holding a diversified, well-balanced portfolio of factors can reduce risk and deliver a smoother, positive return stream. After understanding the philosophy of balanced factor investing, the next question is how to practically implement a factor strategy. In forthcoming articles of *Risk & Reward* we plan to investigate these approaches in greater detail.

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**Note**

1. “Enhanced index” and “smart beta” strategies as defined by eVestment, Preqin, The Economist Intelligence, as at April 2016.
Invesco has two teams for factor investing. Risk & Reward spoke to the heads of the two teams, Bernhard Langer from Invesco Quantitative Strategies and Dan Draper from PowerShares by Invesco. Read what they have to say about factor investing.

**Risk & Reward:**
**Who invests in factor strategies today?**

**Bernhard Langer:**
Our entire client range is considering them, including institutional and retail investors. The inflows have been considerable, with investors seeking stable relative returns, particularly from multi-factor strategies like enhanced index or low volatility. Due to their track record, they tend to be regarded as attractive core equity investments. Many investors increasingly think of these moderately active strategies as an alternative to traditional passive concepts. They are close to a passive-minded investor’s comfort zone, but active enough to potentially outperform benchmarks after costs.

**Risk & Reward:**
**And what about smart-beta ETFs?**

**Dan Draper:**
They are passive since they follow an index, but their rules-based approach allows them to harvest returns from specific investment factors. These concepts have now become known as smart beta, and represent a dynamic middle ground between purely active and traditional passive investments.

**Risk & Reward:**
**Have they changed the way investors use factors?**

**Dan Draper:**
Factor-based ETFs provide exposure to established factors in both single and multi-factor constructions. Those factors are widely used and well-established in both practice and academic literature. This greatly broadens access and provides a liquid, tradable investment vehicle.

**Risk & Reward:**
**Could you give a few examples of such factors?**

**Dan Draper:**
Value, momentum, quality and low volatility – to name a few. In addition to the empirical evidence that documents their success and diversification benefits, there is also a sound economic rationale behind them. The factors have a live track record. And, there is supporting academic research. This way, investors can avoid allocating capital to a strategy that is no more than an ephemeral trend.
Risk & Reward: You mention two different concepts, and two different teams. Why this differentiation?

Bernhard Langer: Essentially, we’re talking about different degrees of customization. Nevertheless, we share the same philosophy. If someone wants a distinct combination of factors, a specific tracking error or a certain level of expected volatility, Invesco Quantitative Strategies can construct an individual strategy designed to deliver these outcomes, including active stock selection. Think of the four investment concepts we always talk about: Earnings Expectations, Market Sentiment, Management & Quality and Value. Dan, would you agree?

Dan Draper: Absolutely. Smart-beta ETFs could be used for well-diversified core allocations that tilt to a balanced set of factor exposures. Investors may blend various factor strategies to develop a mix that matches their objectives and risk profiles. But it is also possible to blend existing holdings with factor-based ETFs. As an example: an investor who already holds several value strategies with strong track records may add a momentum-based ETF to provide a more balanced factor exposure. Other common uses include tactical tilts, long/short trades and liquidity management.

Risk & Reward: These days, many investors want stability, first and foremost. What is the evidence that factor models can produce consistent, smooth absolute returns?

Bernhard Langer: Actually, it is a misconception that factor strategies by themselves can produce smooth absolute returns. This has usually only been possible for market-neutral strategies. Investors may blend various factor strategies to develop a mix that matches their objectives and risk profiles. But it is also possible to blend existing holdings with factor-based ETFs. As an example: an investor who already holds several value strategies with strong track records may add a momentum-based ETF to provide a more balanced factor exposure. Other common uses include tactical tilts, long/short trades and liquidity management.

Risk & Reward: How often should a multi-factor portfolio be rebalanced?

Bernhard Langer: Some factors, like price momentum, tend to be very dynamic and short lived. These will require more frequent rebalancing, and portfolio managers may be tempted to trade too often – and trading costs may eliminate the factor premiums. On the other hand, long-term oriented factor premiums, like the value risk premium, will usually need longer time horizons to manifest, i.e. much longer rebalancing and trading cycles.

Risk & Reward: What about correlations between factors, and changes of these correlations over time? What tools are necessary to respond swiftly when they occur?

Bernhard Langer: In our view, a well-diversified multi-factor portfolio designed to be suitable for every phase of the business cycle has to be built on long-term correlations. They have tended to be fairly stable, which is why there is always likely to be diversification. Shorter-term correlations, though, may give an

<table>
<thead>
<tr>
<th>Actively managed vs. index-based factor investing</th>
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<tbody>
<tr>
<td><strong>Actively managed</strong></td>
</tr>
<tr>
<td>Model updates</td>
</tr>
<tr>
<td>Factor used</td>
</tr>
<tr>
<td>Transparency</td>
</tr>
<tr>
<td>Cost</td>
</tr>
</tbody>
</table>

Source: Invesco.
Finally, let us talk about you as a company. Invesco is increasingly recognized as an organization dedicated to factor-based science. Can you explain how this came to be?

Bernhard Langer:
Everyone today seems to be talking about factor investing. The idea that factor-based investing can offer the potential to outperform traditional benchmark indices is not at all new. In fact, it dates back to the 1960s. And this is what our investment process is built on. We have gained enormous practical experience, and have always dedicated extensive research to factor investing to make sure we are consistently ahead of the curve. What’s new today is that many investors are increasingly focussing on this area, and we believe we are well positioned to serve clients’ needs here.

Dan Draper:
Our client surveys clearly show a growing interest in factor investing, particularly from institutional investors. Most of them have a good understanding of factors, but they would like to see more information about certain details on how to implement factors in their portfolios. This is exactly where we can add value.

Thank you both.
Sustainable investing ... but how?
by Manuela von Ditfurth and Dr. Martin Kolrep

In brief
Ever more investors want their investments to be sustainable. But which of the many methods is the best? We present various approaches to sustainable investing. One method is based on the widespread best-in-class concept. This involves selecting the sector sustainability leaders to assure a degree of portfolio diversification that would not be possible if the focus is solely on the environmental sector. Which approach to choose also depends on each investor's individual goals. But one thing is certain: the old theory that sustainability is only possible at the expense of performance does not hold true.

In the last ten years, the sustainability demands on financial assets - e.g. CO₂ footprint, labour conditions, corporate governance, to name but a few - have risen. We consider various ways of implementing these criteria in a portfolio and explain why the effort may be worth it.

Does socially responsible management pay off for companies? This question crops up time and again due to the still widespread assumption that sustainable governance imposes too great a restriction on entrepreneurial freedom. The belief is that the impact of a sustainable business strategy is in no reasonable proportion to the costs. At the end of this article, we will consider this assumption once again.

But even if the economic considerations are left aside, for many years investors have been wanting to have an ever greater say in what happens with their money. Along the lines of “money makes the world go around”, the credo is that with every euro or dollar that leaves my purse I can support certain activities - or not, as the case may be. How we put our money to use will ultimately determine the society of the future. And the same naturally applies to investments. Money means power, and many investors have come to realize that they are no longer willing to simply surrender this power but want to use it for their own purposes and goals. This alone justifies a departure from conventional index investments, with the invested funds being spread out over all issuers and the focus placed on companies whose philosophy fulfills certain criteria, whether environmental management, labor conditions or any other sustainability criteria. Index investments that do not exploit this potential are frequently cost-efficient but flawed in sustainability terms.

One example is dealing with companies that produce cluster munition. After a convention came into force under international law in 2010 which banned the use, production and distribution of certain types of conventional cluster munition, many investors responded to these new demands and excluded companies involved in the production of cluster munition from their investments. By November 2015 the convention had been ratified by 97 countries and the Holy See, and signed by a further 20 countries. As a consequence, at the end of August 2016 the last US producer of cluster bombs announced that it would discontinue production of banned weapons - a historical step forward because the convention has succeeded in putting cluster munition on the list of proscribed weapons together with biological and chemical weapons.

Another example are the so-called divestment campaigns in which investments in certain industries
are rejected on principle. Divestment campaigns now exist in many countries of the world. Originally such campaigns were politically motivated, and became popular in the 1980s when an economic boycott against the South African apartheid regime was organized in the US. Public investors, such as churches, municipalities or universities were called upon to withdraw all funds from South African investments.

In past years, the objective of divestment campaigns has been to reject equities or other investment vehicles that are questionable in sustainability terms. For example, the global divestment campaign “Go fossil-free” achieved notoriety through the climate change debate. It called upon public institutions, organizations or pension funds to no longer invest in companies from the fossil energies sector. Furthermore, funds already invested in such companies were to be withdrawn and reinvested in sustainable companies. Many cities, regional authorities and universities in the USA and Europe have already withdrawn their investments in fossil energies. The Norwegian pension fund, one of the biggest state funds in the world, has completely withdrawn its capital from coal companies.

These examples clearly show that a combination of regulatory controls, investment restrictions and social ostracism can indeed achieve significant changes. Nonetheless, many investors still steer clear of sustainable investments amid fears of a loss in performance as a result of taking account of sustainability criteria. The argument is that a restriction on an investment universe would automatically result in performance losses.

Yet the original idea of sustainable investing is based on the assumption that companies competing against each other will generate above-average returns and increase shareholder value in the long term if they exploit ecological and social potentials for their corporate strategy. Companies that are already preparing themselves for the upcoming social and ecological challenges are, on the whole, quicker at both recognizing risks and seizing opportunities than others. They are also generally better prepared for regulatory changes. What is more, socially responsible management also strengthens trust and enhances a company’s reputation.

Consumers, business partners and investors are no longer indifferent to the conditions under which products are manufactured or services offered.

In the past, this issue in particular was frequently underestimated by companies. Consumers, business partners and investors are no longer indifferent to the conditions under which products are manufactured or services offered. The fulfillment of certain minimum requirements is now standard practice. Besides pure economic considerations, societal and social aspects are also growing in relevance. And it stands to reason that a company’s reputation must not only be visible from the outside but must also be actually lived within the company.

To anchor the theme of sustainability in investments, various ESG strategies (ESG = Environmental, Social, Governance) exist which have established themselves in recent years. The global investment volume in these strategies focuses essentially on five approaches (figure 1):

1. Exclusion/negative screening: investments that involve the complete exclusion of certain themes.
2. Integration: systematic consideration of ESG factors in the investment process and classic financial analysis, i.e. besides classic valuation criteria, a company’s quality is also directly measured according to ESG criteria.
3. Engagement/shareholder action: shareholder influence on companies pursuing critical activities through direct dialogue or proxy voting.
4. Norms-based screening: criteria are applied that are based on international standards and norms.
5. Positive screening/best-in-class: identification of companies that, within their sector, fulfill certain criteria from the environment, social and governance areas to an above-average degree.

Other forms of sustainable investing, such as impact investing (investments that not only pursue financial return aspects but are also aimed at having a social and ecological impact) or theme-based investments (investments geared directly and thematically to sustainability, e.g. renewable energies, environmentally friendly technologies etc.) generally play only an insignificant role.

According to a study published in September 2014 by the international GSIA (Global Sustainable Investment Alliance), 2014 Global Sustainable Investment Review.
Alliance), the volume of assets managed in line with ESG criteria amounted worldwide to some USD 21.4 trillion. With growth in these strategies reaching some 30% p.a. in recent years, the current volume is now estimated to lie at roughly USD 35 trillion.

Sustainable investing yes! But how?
Anyone keen to invest in accordance with the ESG criteria will need to answer two fundamental questions at some stage in time – how can ESG information on companies be obtained and processed, and how should the results be applied in a portfolio. We believe that a distinction must be made between two potential approaches:

- **Positive criteria:** by applying positive criteria, companies are identified that display excellence in sustainable management and sustainable products or processes. They fulfil ecological and social requirements particularly well, ranging from climate efficiency and low water consumption to labour safety and satisfaction.

- **Exclusion and negative criteria:** by applying these criteria, companies, sectors or countries can be excluded from the investment universe that fail to fulfil certain ESG criteria or that violate international norms and standards according to the definitions of the International Labour Organisation (ILO), the OECD or the United Nations. Negative screening is one of the most frequently used approaches.

Furthermore, a distinction must be made between two fundamental considerations, the absolute and the relative approach (figure 2):

- **Absolute approach:** the ESG rating is calculated on the basis of absolute criteria. The focus lies solely on how well a company fulfils the ESG requirements, regardless of how it stands in relation to other companies. Similarly, negative screening allows companies to be excluded if they pursue or support certain activities. This can result in a very large number of stocks being excluded from one sector but only a very small number from another. Where necessary, certain sectors can even be fully excluded if their activities are not commensurate with the ESG criteria. While the absolute consideration has the advantage of applying certain minimum cross-industry standards, the exclusion of specific sectors can greatly narrow portfolio diversification.

- **Relative approach:** when applying this approach, companies are initially sorted into groups, for example by sector or industry. The best stocks are then filtered out of the groups, for example in accordance with a predefined share.

The database EIRIS Portfolio Manager (EPM)¹ offers a way to implement the aforementioned positive, negative and exclusion criteria in sustainable equity and corporate bond portfolios. Because EPM does not prescribe any standardized rating, investors can define individual exclusion criteria and assess enterprises in accordance with their own criteria. EPM enables companies to be either excluded or selected on the basis of weighted positive and negative criteria. A combination of both methods is also possible. With its research on some 3,500 listed companies worldwide, EPM covers all the usual global and regional equity indices. Companies are analyzed on the basis of 250 different criteria for all relevant sectors.

ESG rating agencies
ESG ratings have grown in importance in response to the steadily growing interest in sustainability investing. Recent years have seen a growing number of ESG rating agencies introduced on the market.

ESG ratings aim to measure a company’s sustainability. But because no standard exists for this, it is important to know the method being used to assess and weight the environmental, social and governance themes and the information sources on which the ratings are based. For example, many agencies use the best-in-class method while others prefer to apply their own catalogue of criteria or simply provide information so that the investor can decide for himself/herself what is relevant. The analysis results can therefore differ greatly or even contradict each other.

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¹ EPM is a joint project of the large asset manager group Invesco. It is aimed at enabling investors to assess companies in line with ESG criteria.
ESG fields. These include environment, corporate governance, human rights, labour conditions etc.

A so-called Country Sustainability Rating is available for sovereign bonds via Vigeo Eiris. This sustainability rating can be modified in accordance with an investor’s own personal requirements. To assess a country in terms of sustainability criteria, a large number of indicators are used from the areas of politics, social issues and the environment which are then combined into an overall rating. Reliable international sources, such as Amnesty International, UNICEF, World Bank and WHO, are used for the assessment.

Figure 3 shows selected ESG factors for companies and countries.

Sustainability indices
As the notion of sustainability covers a very wide area, sustainability indices that apply the best-in-class principle were developed as an orientation aid for investors interested in sustainability investing. They track the development of a sustainability-aligned equity universe. Examples of index series that are global leaders in this area are Dow Jones Sustainability, FTSE4Good or the MSCI sustainability indices that are offered in the form of international, regional or national indices.

For a best-in-class index, companies that rank among the leaders of their sectors in terms of environment, social issues and governance are selected in accordance with this concept. In other words, the index is not restricted to classic sustainability sectors such as renewable energies or environmental technology. Carmakers or oil and chemical companies are also considered - provided they score particularly well in the ESG rating and are most effective at implementing ecological and social standards within their industry.

One of the greatest stumbling blocks of this approach is that these companies do not need to be particularly sustainable to be included in this index; it is sufficient for them to rank among the best within a peer group (e.g. a sector). This implies the risk of investing in stocks which, in absolute terms, are not particularly sustainable but which are still relatively well positioned in their sector. On the other hand, stocks might be excluded which do not rank among the best in their peer group but which are still better than most companies from another sector. But this is a general problem with all relative approaches.

The weighting method can pose a further problem as many best-in-class indices are weighted according to market capitalization. This means that relatively small companies that work entirely in accordance with socially responsible criteria have no chance of being given a significant index weight.

Further influence through proxy voting and engagement
There are various ways of exerting pressure on companies to make them more sustainable. Over the years, investors have realized the need to do more than simply exclude or sell stocks in companies that do not meet the investor's sustainability requirements. This gave rise to the desire to use voting rights as a means of influencing companies.

Key features of well-managed companies are responsible governance, transparent reporting and a performance-oriented corporate culture, with the focus both on the interests of the stakeholders as well as those of the shareholders. One way of influencing this is through proxy voting at annual general meetings (AGMs).

Another way is to exert influence by means of direct dialogue with management, known as engagement. Investors are given the opportunity of raising key sustainability issues with a company's management and point out irregularities.

Invesco Quantitative Strategies also enters regularly into dialogue with companies via VigeoEiris. The
The objective is to identify weaknesses in the company’s sustainability management and discuss these with management to enable the companies to achieve a better ESG performance in the medium to long term. Here, too, a distinction is made between two engagement methods (figure 4): theme-based engagement aims to encourage companies to expose and reduce systemic risks in areas such as climate change, bribery and corruption. Controversy-led engagement aims to prompt companies to observe internationally-recognized standards and conventions and correspondingly improve their company guidelines.

This typical process of engagement, in which the interests of several investors are bundled together, can often have a significant influence on companies: after all, companies that refuse or choose to ignore the improvements being suggested can face de-investment – to their own detriment.

Conclusion: sustainability, performance and risk
And so the circle closes. Bearing all this in mind, it is reasonable to conclude that consideration of ESG factors in investments should not lead to the frequently feared earnings losses. If investors give preference to sustainable companies, this will boost these companies’ share prices – and the postulated connection between sustainability and performance will become a self-fulfilling prophecy as often happens on financial markets. The connection between sustainability and performance has meanwhile been confirmed by many scientific studies.4

Yet it is still important to consider that overly restrictive sustainability criteria can limit the investment universe to such an extent that portfolio diversification is greatly impeded. The exclusion of entire sectors can be detrimental to achieving an appropriate risk-return profile, no matter how sustainable the remaining companies are. It is therefore always vital to carefully weigh up the pros and cons, and from the various approaches presented in this article select the sustainability method that is most appropriate for the investment goals. This can be either an absolute or a relative approach, a screening concept or a best-in-class selection.

### Figure 4
The engagement approaches

<table>
<thead>
<tr>
<th>Theme-based engagement</th>
<th>Controversy-led engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Climate change</td>
<td>Encourage companies to fully address allegations of corporate breaches of global norms and conventions</td>
</tr>
<tr>
<td>- Water risk</td>
<td></td>
</tr>
<tr>
<td>- Bribery and corruption</td>
<td></td>
</tr>
<tr>
<td>- Labour standards</td>
<td></td>
</tr>
<tr>
<td>- Human rights</td>
<td></td>
</tr>
</tbody>
</table>

Sources: Invesco, Vigeo Eiris, as at August 2016.

### About the authors

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Senior Portfolio Manager, Invesco Quantitative Strategies
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### Notes

3. As soon as we have defined the themes of our engagement, we write to the companies and draw their attention to the weaknesses or missing processes. Together with Vigeo Eiris, we analyze the answers or ask further questions. The results are carefully documented. Engagement processes can take several years to complete.
4. For example, in its study “Alpha from Sustainability” published in June 2014, RobecoSAM examined the connection between sustainable corporate governance and returns. It revealed that on average, the share prices of sustainable companies performed better from 2001 to 2013 than those of their less sustainable rivals. The study, based on 530 developed market companies in the RobecoSAM research universe (the participants in the RobecoSAM Corporate Sustainability Assessment), shows that sustainability and profit maximization do not rule each other out.
US municipal bonds: what global investors need to know
by Mark Gilley, Allen Davis and Stephanie Larosiliere

In brief
Although historically the investment of choice for high net worth US retail investors, yield-starved foreign investors have flocked to investment grade US municipal bonds over the past year. They are drawn to the asset class by its history of relatively low volatility and near-zero default rates, not to mention potential diversification benefits and an attractive return profile in a global market short on yield.

Unlike US citizens, foreign investors are not eligible to take advantage of the federal tax exemption feature for which municipals are known. Nonetheless, these investors are piling into the USD 3.8 trillion market. At the end of 2015, foreign investors held around USD 90 billion in US municipal debt, up from around USD 72 billion in 2010.

While the tax exemption feature of US municipal bonds has in the past appealed primarily to US investors, global investors appear to have recognized their potential advantages. We highlight several attributes that we believe make the US municipal bond market stand out among other large investable fixed income markets.

Municipal bonds have played a vital role in building the framework of America’s modern infrastructure. They were a major source of financing for canals, roads and railroads during the country’s westward expansion in the 1800s. Today, the proceeds from municipal debt continue to fund a wide range of state and local infrastructure projects, including: schools, hospitals, universities, airports, bridges, highways, water and sewer systems.

Municipal bonds are issued by US state and local governments (municipalities), eligible not-for-profit corporations and territories and possessions of the US (for example, Puerto Rico, Guam or American Samoa). When an investor purchases a municipal bond, he or she is lending money to build schools, highways, hospitals, sewer systems and a myriad of other public projects.

The importance of municipal bonds in the development of US infrastructure

- **1927**: Municipal market size reaches USD 14.9 billion
- **1926**: New York State Port Authority issues first revenue bond
- **1900**: Rapid population growth begins 25-year infrastructure boom
- **1776**: The Declaration of Independence is signed
- **1807**: Municipal bonds finance building canals, roads and railroads in westward expansion
- **1907**: New York City issues the first general obligation bond
- **1820**: New York State bonds are used to finance the Erie Canal project
- **1913**: Inception of the federal income tax
- **1812**: Inception of the federal income tax
- **1926**: New York State Port Authority issues first revenue bond
- **1950**: Most states in the US enact legislation allowing for the issuance of revenue bonds
- **1969**: Tax Reform Act of 1969 introduces the Minimum Tax, known today as the Alternative Minimum Tax
- **1975**: Municipal Securities Rulemaking Board is established
- **2014**: Municipal market size reaches USD 3.7 trillion


Risk & Reward, Q4/2016
Traditionally, municipal bond interest payments are exempt from federal income taxes and sometimes state income taxes for domestic investors. For US taxpayers, assessing the tax-equivalent yield of a municipal bond is essential when comparing tax-exempt municipal bonds with their taxable counterparts such as US Treasuries, US agency, corporate and sovereign bonds (see box: Understanding tax-equivalent yield).

### Two types of municipal bonds

In general, municipal bonds fall into one of two categories: general obligation bonds or revenue bonds. The primary distinction between the two is how their principal and interest payments are secured—in other words, what source of revenue secures the bonds.

General obligation bonds at the state level are secured by the state government’s pledge to use all legally available resources to repay the bond. At the local government level, general obligation bonds are backed by an ad valorem tax pledge that can be either “limited” or “unlimited.”

- **Limited tax**: secured by a pledge to levy taxes annually within the constitutional and statutory limitations provided by law.
- **Unlimited tax**: secured by a pledge to levy taxes annually without limitation to rate or amount to ensure sufficient revenues for debt service.

Examples of issuers of general obligation bonds include states, cities, counties and school districts.

Revenue bonds are secured by a specific source of revenue earmarked exclusively for repayment of the revenue bond.

- **“Enterprise” revenue bonds** are typically issued by water and sewer authorities, electric utilities, airports, toll roads, hospitals, universities, and other not-for-profit entities.

- **“Tax”** revenue bonds are backed by dedicated tax streams, such as sales, utility or excise taxes.

### Who owns them?

The US municipal bond market (including municipal loans) has USD 3.8 trillion of debt outstanding versus the US corporate bond market with USD 8.4 trillion. While the municipal market is smaller in terms of volume, there are far more municipal than corporate issuers.

### Understanding tax-equivalent yield

Yields on municipal bonds are typically quoted in terms of their tax-equivalent yield, which represents the equivalent yield on a fully-taxable bond yield. Because of their tax-exempt status in the US, yields on municipal bonds typically offer a lower yield than their taxable counterparts. For US taxpayers, assessing the tax-equivalent yield of a municipal bond helps when comparing municipal bond yields with yields on their taxable counterparts. The formula is known as the Taxable Equivalent Yield formula (TEY) and is expressed as:

\[
\text{Taxable Equivalent Yield} = \frac{\text{Tax-exempt yield}}{(1 - \text{marginal tax rate})}
\]

where: Tax-exempt yield = municipal bond yield
Marginal tax rate = the percentage tax rate paid on last US dollar of taxable income

The table below shows tax equivalent yields based on the highest individual US federal tax bracket. For example, an investor in the 43.4% marginal federal income tax bracket holding a municipal bond that yields 5.00% would need to earn a yield of 8.83% on a taxable investment to produce an equivalent amount of after-tax interest income.

#### Taxable equivalent yield for top tax bracket (43.4%)

<table>
<thead>
<tr>
<th>Tax free yield (%)</th>
<th>1.00</th>
<th>1.50</th>
<th>2.00</th>
<th>2.50</th>
<th>3.00</th>
<th>3.50</th>
<th>4.00</th>
<th>4.50</th>
<th>5.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taxable equivalent (%)</td>
<td>1.77</td>
<td>2.65</td>
<td>3.53</td>
<td>4.42</td>
<td>5.30</td>
<td>6.18</td>
<td>7.07</td>
<td>7.95</td>
<td>8.83</td>
</tr>
</tbody>
</table>

Source: Based on 2015 federal tax rates. For illustrative purposes only. Taxable equivalent = (tax-deferred interest rate) x [1 / (1 - tax bracket)]. Numbers presented are hypothetical and for illustrative purposes only and are not a representation of future yields. Actual yields may be lower or higher than the example. Income exempt from regular federal income tax may be subject to the US federal alternative minimum tax, as well as state and local taxes.

**Figure 1 Ownership breakdown of US municipal and corporate securities**

<table>
<thead>
<tr>
<th>Ownership of US municipal bonds and loans</th>
<th>Ownership of US corporate bonds and non-US bonds</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>US households</strong></td>
<td><strong>Non-US investors</strong></td>
</tr>
<tr>
<td><strong>US mutual funds and ETFs</strong></td>
<td><strong>Other US investors</strong></td>
</tr>
<tr>
<td><strong>US banks and credit unions</strong></td>
<td><strong>US insurance companies</strong></td>
</tr>
<tr>
<td><strong>US insurance companies</strong></td>
<td><strong>US local, state &amp; federal governments</strong></td>
</tr>
</tbody>
</table>

**US corporate bonds and non-US bonds** represent “Corporate and foreign bonds” as defined by the US Federal Reserve. They include debt obligations of US financial and non-financial corporations and foreign entities. The obligations which are reported on balance sheets as debt having a remaining maturity of more than one year include bonds, notes, debentures, mandatory convertible securities, long-term debt, and unsecured debt. The obligations of savings institutions include mortgage collateralized securities. For US corporations, the category includes bonds issued both in the US and in foreign countries, but not bonds issued in foreign countries by foreign subsidiaries of the U.S. corporations.

Source: Invesco, based on data from Ned Davis Research and the US Federal Reserve, as at 30 June 2016.
Since most municipal securities are exempt from federal taxes for the majority of US taxpayers, they have appealed widely to individual investors. Unlike the markets for US corporate and non-US bonds, the US municipal market is largely dominated by US retail investors (figure 1). Through direct investment in individual municipal securities (bonds and loans) and indirect investment via mutual funds and ETFs, US individual investors represent a combined 69% of total ownership.

Retail investors tend to favour the municipal bond market’s strong average credit quality, tax-free income generation, and ability to diversify asset allocation. Individual investor demand has been historically cyclical and tended to rise following strong returns. This highly cyclical pattern of retail investor demand is somewhat unique to the municipal market.

Banks represent almost 14% of total ownership (figure 1). A bank typically buys municipal bonds as a portion of its broader fixed income portfolio when municipal yields versus taxable alternatives are advantageous and/or the bank believes it will benefit from tax-exempt interest. Insurance companies represent roughly another 13%. They have strategically owned municipal bonds as a way to diversify their fixed income portfolios. Property and casualty insurers have tended to purchase short and intermediate maturity municipal bonds while life insurance companies have typically focused on longer durations, due to the long-term nature of their policies. Bank and insurance company demand for municipal bonds has historically been driven by long-term secular trends which have been less correlated with retail investment.

Other non-typical investors, such as hedge funds and foreign investors, have historically tended to purchase municipal bonds when they are cheap relative to corporate alternatives, even when not accounting for their tax benefit. This category also includes buyers of distressed bonds that are priced based on potential recovery outcomes – which also would not take tax-exempt benefits into account. This group could eventually help to mitigate downturns in individual investor demand. However, it is too soon to determine if it will one day have a meaningful impact.

How are they structured?
The typical municipal bond structure includes level debt service payments and annual principal amortization (similar to consumer mortgage lending). These payments are relatively level from year to year, allowing an issuer to better align reoccurring revenue streams with annual debt service payments. This lowers refinancing risk, meaning municipal bondholders may be less concerned when systemic risk is elevated. To compare, the typical corporate and sovereign bond structures include interest-only payments and a balloon principal payment at maturity. This structure is more vulnerable to refinancing risk if the issuer chooses to refinance the balloon payment.

When structuring a municipal debt offering, an issuer must take into account a broad range of legal, policy and financial objectives. The majority (68%) of outstanding municipal debt is backed by a dedicated revenue pledge. Investors typically want assurance that pledged revenues will be sufficient for debt service. Thus, as part of the structuring process, a bond ordinance or trust indenture will explicitly outline provisions governing the flow of funds securing the debt and bond covenants.

Callable securities generally offer a stated maturity but allow the issuer an option to redeem (or “call”) the bonds prior to the maturity date after an initial non-call period. The majority of longer-dated municipal bonds carry a ten-year call provision. When interest rates fall, an issuer is more likely to exercise a call provision to retire what has become high-interest debt and reissue debt at the prevailing lower rate.

Two important strengths: sound credit quality...
The majority of state and local governments are highly rated, whereas corporate credits tend to have lower average ratings (figure 2). As many as 93% of municipal issuers rated by Moody’s are currently rated single-A or higher. By comparison, only 25% of global corporate issuers are rated single-A, or higher.

![Figure 2: US municipal versus US corporate issuers' ratings](image-url)
Accordingly, it comes as no surprise that municipal default rates have been exceptionally low, especially when compared with US corporate bonds. The ten-year average cumulative default rate for high yield corporate bonds is more than three times higher than the high yield municipal bond default rate (figure 3). This comparison is even more pronounced in the investment grade universe where the corporate investment grade default rate is 27 times higher than the municipal investment grade default rate.

... and diversification potential
Municipal bonds also offer potential diversification advantages, even if investors do not benefit from their tax-exempt status, making them attractive to foreign as well as domestic investors. Advantages may exist because municipal bonds have historically exhibited very low correlation to other asset classes, including equities and US Treasuries (figure 4).

Outlook
With their low refinancing risk (due to level and consistent debt service payments), high average credit quality, low historical default rates, diversification potential and last but not least - attractive current yields, US municipal bonds can be an interesting choice even for non-tax-exempt investors outside the US – a choice which, as we believe, can be even more appealing if one chooses an active, credit-oriented management approach.

In our view, this has become even more important since the global financial crisis. Before, the overwhelming majority of municipal bonds were insured, meaning they were viewed as having the same credit risk as the insurer. But after the crisis, more weight was placed on the fundamentals of the

<table>
<thead>
<tr>
<th>Figure 3</th>
<th>US municipal versus US corporate issuers’ default rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>(in %)</td>
<td>10-year cumulative default rates, 1970-2014</td>
</tr>
<tr>
<td></td>
<td>Municipal bonds</td>
</tr>
<tr>
<td>Aaa</td>
<td>0.00</td>
</tr>
<tr>
<td>Aa</td>
<td>0.01</td>
</tr>
<tr>
<td>A</td>
<td>0.06</td>
</tr>
<tr>
<td>Baa</td>
<td>0.37</td>
</tr>
<tr>
<td>Ba</td>
<td>4.11</td>
</tr>
<tr>
<td>B</td>
<td>17.48</td>
</tr>
<tr>
<td>Caa - C</td>
<td>16.88</td>
</tr>
<tr>
<td>All Moody's investment grade</td>
<td>0.08</td>
</tr>
<tr>
<td>All Moody's high yield</td>
<td>7.52</td>
</tr>
<tr>
<td>All Moody's rated securities</td>
<td>0.14</td>
</tr>
</tbody>
</table>


Municipal bonds have historically exhibited very low correlation to other asset classes.
underlying borrower. There are currently very few insured bonds coming to market (figure 5) and we believe this change has made the municipal market more credit-driven and less rates-driven. We believe this is all to the advantage of active managers with strong credit research and risk management capabilities – in particular since the municipal bond market continues to grow in complexity, with currently over 37,000 government and non-government obligors.6

Figure 5
Insured new municipal debt as a percentage of total new municipal issuance

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>46.8</td>
<td>18.5</td>
<td>8.6</td>
<td>6.2</td>
<td>5.3</td>
<td>3.5</td>
<td>3.4</td>
<td>5.5</td>
<td>6.4</td>
</tr>
</tbody>
</table>


Notes
1 Source: The Federal Reserve Board, data as at 30 June 2016.
2 Source: The Federal Reserve Board, data as at 31 December 2015 and 31 December 2010.
3 An ad valorem tax is based on the assessed value of real estate or personal property.
4 Source: Bloomberg L.P., as at 15 April 2016.
5 Ibid.
6 Ibid.
India: many advantages at a glance
by Sujoy Das and Vinay Paharia

In brief
Labelled not so long ago as one of the “Fragile Five”, India has made considerable progress over the past few years. Economic growth has picked up, inflation is on the decline, the current account deficit is shrinking and government finances are improving. Much of this success can be attributed to the new policies of the Reserve Bank of India and the reforms of the Modi government, which came into power in May 2014 and has quickly gained the trust of the markets. Add India’s favourable demographics, and a winning combination develops. Needless to say, our team in India is very optimistic for the country’s equity and bond markets.

As a USD 2 trillion1 economy growing at a rate of over 7% p.a., India has captured the world’s attention. The country today is increasingly being looked to as a rising economic powerhouse among the other emerging global markets. We take a detailed look at the figures and share our views on Indian equities and bonds.

There has been a swift transition in India’s economic situation over the past several years: the country emerged as the No. 1 global investment destination for the year 2015, overtaking China.2 More recently, India has also made an immense “16-spot” leap to rank 39th in the World Economic Forum’s Global Competitive Index 2016-17. Quoting the report, “India leads the group of South Asian economies, climbing to 39th with improvements across the board, including institutions and infrastructure, which have been particularly important in increasing overall competitiveness.”

This considering that, until quite recently, India was in fact belittled as one of the globe’s “Fragile Five” economies! So what has changed for the country over these past few years?

A young country with strong domestic demand and rising consumerism, India’s macro-economic situation has improved (figure 1). Imported inflation has been moderated and the trade balance improved thanks to prudent monetary policies by the country’s central bank and robust initiatives by the government to consolidate the country’s fiscal position, together with a strong focus on reforms and the softening global commodity prices.

India is presently forecast by major international agencies to grow at over 7% (figure 2). It is estimated

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Figure 1
India’s economy at a glance

<table>
<thead>
<tr>
<th></th>
<th>March 2014</th>
<th>March 2015</th>
<th>March 2016</th>
<th>Latest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic growth (quarterly gross value added at constant prices, YoY)</td>
<td>4.9%</td>
<td>6.2%</td>
<td>7.4%</td>
<td>7.3%*</td>
</tr>
<tr>
<td>Forex reserves (USD billion)</td>
<td>304</td>
<td>342</td>
<td>360</td>
<td>372**</td>
</tr>
<tr>
<td>Repo rate</td>
<td>8.00%</td>
<td>7.50%</td>
<td>6.75%</td>
<td>6.25%***</td>
</tr>
<tr>
<td>Headline CPI inflation</td>
<td>8.25%</td>
<td>5.25%</td>
<td>4.83%</td>
<td>4.39%**</td>
</tr>
<tr>
<td>Current account deficit (% of GDP)</td>
<td>1.7%</td>
<td>1.3%</td>
<td>1.1%</td>
<td>0.1%****</td>
</tr>
<tr>
<td>Fiscal deficit (% of GDP)</td>
<td>4.6%</td>
<td>4.1%</td>
<td>3.9%</td>
<td>--</td>
</tr>
</tbody>
</table>

* as at June 2016; ** as at 30 September 2016; *** since 5 October 2016; **** provisional, as at June 2016.
Source: Bloomberg; RBI for current account deficit.
that the nation’s growth will surpass that of most other emerging nations. These projections are supported by key economic parameters exhibiting visible progress. Notably, India’s impressive growth forecasts come at a time when global economic growth is being pegged at just over 3%.

**Inflation**

One of the keenly watched macro-economic variables in India is consumer price inflation (CPI). High CPI had long been a cause of concern, but inflation is now well within the comfort zone of India’s central bank, the Reserve Bank of India (RBI). In fact, CPI is expected to further moderate as the result of a reasonably good monsoon season this year. Monsoon is essential to agricultural growth in India, and given a good spell this season, food prices are likely to cool off.

Also, low commodity prices globally (especially for crude oil) have helped keep a lid on imported inflation. India, being a net importer of crude, meets more than 80% of its crude requirements through imports.\(^3\) The ongoing glut in the crude oil market is thus a welcome development.

**Interest rates**

As inflation moderates, India has enjoyed the flexibility of lowering its interest rates to boost growth prospects. In India, government bond yields are presently higher than in most other economies worldwide (figure 3), so that there are attractive investment opportunities for investors to find. In fact, even if yields were to come off from their current levels in the coming months (as expected), they would nonetheless remain competitive vis-à-vis other global economies.

**Prudent monetary policy**

The RBI has played a crucial role in maintaining India’s macro-economic stability through its prudent policy actions. Time and again, the central bank has adroitly enabled the economy to better handle internal and external shocks.
For instance, a few years ago, the RBI aggressively hiked the interest rates to clip the wings of spiralling inflation. But, with the effects of a tightened monetary policy beginning to play out and inflation gradually inching closer to RBI’s defined targets, the central bank is ready to gradually soften its stance on rates.

Again, to tackle the menace of the mounting bad debt that is clogging the country’s financial system, the RBI has initiated a massive drive to clean-up banks’ books.

Revered as a credible central bank, and recognized for its autonomous decision-making, the RBI formed the Urjit Patel Committee to advise it on improvising and further strengthening the monetary policy framework in India. The committee advised setting up a 4% consumer inflation target until FY 2021, and channelling the interest rate trajectory in the same direction. It further advised institutionalisation of monetary policy decisions, including decisions on interest rates, instead of holding a single person, i.e. the RBI Governor, accountable for policy moves.

Adhering to these suggestions, the Monetary Policy Committee (MPC) - comprising the members of the RBI and the central government, and headed by the RBI Governor Dr Urjit Patel – has now been formed. It is expected that the MPC will further enhance transparency and add more value to monetary policy decisions.

**Improving reserves and a stable currency**

India’s foreign exchange (forex) reserves have steadily grown from USD 292 billion in March 2013 to USD 372 billion (as at 30 September 2016; figure 4), providing the country with almost 12 months’ import cover.

India’s current account deficit is also on a glide path and has improved to USD 0.3 billion or 0.1% of GDP (2nd quarter 2016, provisional) from USD 6.1 billion or 1.2% of GDP (2nd quarter 2015) and USD 7.8 billion or 1.6% of GDP (2nd quarter 2014), with potential to turn positive in the near term.4

The fiscal deficit too has been trimmed to 3.9% of GDP (FY 2016) from a high of 4.6% of GDP (FY 2014)5, and the government now targets a further lowering to 3.5% of GDP in FY 2017. Essentially, the government has managed to achieve its fiscal deficit targets without compromising on its budgetary spending. Government’s total capital expenditure (budgeted) for 2016-17 has in fact increased to INR 2,470 billion (USD 37 billion) from INR 2,377 billion (USD 35 billion) in 2015-16 and INR 1,967 billion (USD 29 billion) in 2014-15.6

Stability in overall macro-economic conditions has in turn helped the Indian rupee, which continues to hold relatively stable to the US dollar. It should however be noted that, while inflation in India is on the way down, it will continue to be relatively high compared to other countries, which may have a bearing on its currency going forward.

**Young demography and rising consumerism**

Another key to India’s economic growth lies in its strong domestic consumption, largely driven by its sizeable population of over 1.2 billion.7 The country’s domestic consumption improved as a percentage of GDP to 68.89% in 2014, from 65.98% in 2007.8

Age is another factor supporting Indian demography, and with a median age of 26.66, largely in the working age group, India today ranks amongst the relatively younger economies of the globe. China, in comparison, has a median age of 37 years while in Japan it is 46.5 years.10 With this young demography and rising incomes, consumption demand in India is expected to grow by almost 170% to USD 3,563 billion by FY 2025, from the present USD 1,338 billion (FY 2015).11

Given its strong domestic economy, the country is relatively less vulnerable to external shocks.

**Reform-oriented, stable government**

India’s incumbent government is a single party formation with a majority mandate that lends political stability through its five-year tenure.
Since coming to power in May 2014, Prime Minister Narandra Modi has been persistent on consolidating India's fiscal situation, while steering the economy on a reform path. He has successfully managed to scale down subsidies, especially on petroleum products, which had long been a drag on the country's fiscal position. The government's subsidy bill is down to INR 2,317 billion (USD 34 billion) budgeted for FY 2015, from INR 2,418 billion (USD 36 billion) in FY 2016 and INR 2,490 billion (USD 37 billion) in FY 2015.12

To boost economic growth, the government is promoting “Make in India” - inviting businesses from across the world to set up manufacturing units in the country. “Make in India” is aimed not only at transforming India into a global manufacturing hub, but also generating employment for the country’s rising young population, and consequently supporting economic growth.

To boost economic growth, the government is promoting “Make in India”.

For “Make in India” to succeed, investors need to feel comfortable about doing business in India. “Ease of Doing Business” has thus assumed a great deal of significance in recent times. Apart from complete digitalization of public services systems and attempts to simplify processes, the foreign direct investment (FDI) norms have also been further liberalized to extend to more sectors such as: insurance, aviation, defence and pharmaceuticals, among others. FDI is already on a steady rise, with total inflows of USD 55.46 billion in FY 2016, up from USD 45.15 billion in FY 2015.13

The push for financial inclusion has resulted in the launch of Jan Dhan Yojana - an initiative to connect India's unbanked population to the banking infrastructure. The campaign has so far resulted in the opening of more than 226 million new bank accounts, with deposits of more than USD 6.06 billion across the country.14

More recently, the legislature has also set the ball rolling to replace India's plethora of local and state taxes and tariffs with a single national VAT, which will further ease the process of doing business in the country. The new Goods & Services Tax (GST), reckoned as a key tax reform in India's history, is expected to further improve the tax-to-GDP ratio over time; enabling the government to further consolidate the fiscal deficit.

Simultaneously, the government is pursuing policies to prevent tax evasion, and thus reduce the prevalence of black money in the economy. These measures are expected to significantly broaden and simplify the taxation system and increase the growth potential of the economy. However, in the near term, this may result in a disruption of consumption patterns.

The GST rates may also have an impact on the fiscal account and inflation if they are fixed too high.

The prospects for equities...

The Indian economy is underpinned by stable macro-economic fundamentals. Growth indicators are flashing a few mixed signals, but this is to be expected during the early stages of a recovery. Monetary policy and government reforms, we believe, will help strengthen the recovery process. However, capacity utilization is currently at 72.9% (as per the latest RBI data).15 This is significantly below the long-term average and is one of the reasons for the slow pick-up in investment demand. Low capacity utilization, along with high levels of debt in certain sectors, is holding back capital investment. While many companies are presently de-leveraging their balance sheets, it is a long drawn-out process, which may slow the potential recovery in capital expenditure.

In the global context, however, we believe India remains well placed in terms of macro-economic stability, and potential for growth is higher than what is currently being achieved. Bridging the gap to potential may require the global economy to be more supportive, and also require additional steps at home to unclog the factor markets, which is the focus area for the government. The platform of macro-economic stability and continued traction in policy making and implementation is in our view a desirable combination, and one that makes India a very attractive market for us as equity investors. In our view, India today is in what is popularly described as a “sweet spot”. But we have to look beyond the obvious and assess how much of that “sweet spot” and expected growth is built into the valuations.

Equities are a growth asset - tracking growth in earnings over the long term. The fluctuations in stock prices are more extreme than the changes in earnings because they are accentuated by changes in valuations. Valuation levels reflect collective confidence in future growth. The sharp rally in the Indian equity market, since March 2016, has pulled valuations higher, which has made the environment challenging. An argument in favour of higher valuations is that they reflect how current profits are depressed relative to their long-term averages. In other words, profits as a percentage of revenues and GDP are at subdued levels. India today is in a stage of recovery where there are hiccups in the form of high interest rates and lower capacity utilization. As the economy moves into higher gear, there will be scope for profits to recover to historical averages driven by levers of higher capacity utilization and lower financial leverage (figure 5).

Over the longer term, we recognize the potential for mean reversion in profits - but this will be a gradual process. The exact timing of this may be uncertain, but the levers certainly exist. As investors, we need to balance the upside potential for equity prices from mean reversion in profitability metrics against the risk from mean reversion in valuation metrics.

...and for bonds

We believe that achieving RBI’s inflation target of 4% in 2 years time is a possibility, given India’s moderating domestic inflation, lower food and energy
prices, as well waning price pressures in the global markets. We expect the RBI to continue as well with its expansive monetary policy, as inflation continues to moderate and the government remains committed to achieving a fiscal deficit target of 3.5% for FY 2017.

We are positive on Indian sovereign and corporate bonds due to lower net supply of securities. Of late, there has been a rise in the issuances of Masala Bonds (rupee-denominated bonds overseas) in global markets, which is expected to reduce primary bond supply in the domestic market. But at the same time, systemic liquidity in the system is expected to improve with the pickup in economic activity, credit growth and money supply.

In the given scenario, we expect the RBI to further drop repo rates towards 5–5.5%, from the present levels of 6.25% over the 2-year time frame.

While bond yields around the world are moving northwards on fears of an inflationary comeback fuelled by expansionary fiscal policy in the US, Indian bond yields are headed lower due to the demonetization drive of the government. This drive is improving deposit growth at banks as people are queuing up to deposit their larger currency notes (Rs 500 and Rs 1000 are no longer permitted as legal tender) and exchange them for the new currency notes with enhanced security features.

This liquidity is finding its way into bonds and driving yields lower. At the same time, the reduction in cash transactions is expected to dampen consumption demand and moderate inflation.

To conclude
Political and macro-economic stability, consolidating fiscal position, moderating inflation, stable currency, high economic growth rate – we believe India today has the key ingredients of a country where smart investors will increasingly find attractive opportunities. Its equity market is on a strong footing, and Indian bonds continue to offer competitive yields compared to other global markets. With a young economy, primarily driven by domestic consumption, India is relatively well-insulated from the plethora of global uncertainties.

<table>
<thead>
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<tr>
<td>EBITDA margins (LHS)</td>
<td>Gross profit margin (LHS)</td>
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<td>%</td>
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<td>FY09</td>
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<th>Financial leverage</th>
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<tr>
<td>Interest exp/EBIT (LHS)</td>
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<tr>
<td>%</td>
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<tr>
<td>10</td>
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<tr>
<td>14</td>
</tr>
</tbody>
</table>


Notes:
1 World Bank. Data as at July 2015. Throughout this article, we have assumed an exchange rate of INR 67 to the USD.
4 RBI
5 India Union Budget Document 2016-17.
6 India Union Budget Document (Expenditure Budget) 2016-17.
7 Mospi Report, India in Figures 2015.
8 World Bank, Consumption in % of GDP.
10 Ibid
11 Department of Industrial Policy & Promotion, GOI. Data from FY 2014 to FY 2016 is provisional.
12 India Union Budget Document 2016-17.
13 GoI – PM Jan Dhan Yojana. Data as at 25 July 2016.
14 Department of Industrial Policy & Promotion GOI. Data from FY 2014 to FY 2016 is provisional.
15 RBI OBICUS Survey for Q1 2016-17.
The role of commodities in a multi-asset portfolio
by Scott E. Wolle

In brief
There are different views on whether commodities should be included in a multi-asset portfolio. We believe that they should be included: due to the specific way they react to growth and inflation, commodities can provide diversification relative to stocks and bonds. At the same time, however, we believe it is important not to simply track a conventional commodity index. Instead, the focus should be on commodities that are difficult to store, since such commodities are more often in backwardation than contango – and backwardation can lead to higher expected returns from commodity contracts. Also, when determining the commodity weight of a multi-asset portfolio, other components such as equities must also be taken into account.

Investors have long debated the wisdom of including commodities in a portfolio. Invesco's Global Asset Allocation Team has a clear position: commodities belong in a portfolio, but not without the right plan. We summarize our research process feeding into multi-asset portfolios as well as a dedicated commodity strategy which we have been applying now for almost a decade.

The prevailing argument for including commodities in a portfolio relates to their inflation-hedging potential. Commodities have indeed demonstrated a strong correlation to inflation (figure 1). Despite the declining relative importance of energy-intensive industries, this correlation has remained intact in recent years. Beyond simple pass-through effects of commodity price changes, most observers link the effect to some combination of monetary policy (i.e., increases in money supply lead to increases in commodity prices) and changes in inflation expectations.

The link between commodities and inflation also helps to explain the second benefit often attributed to commodities: their diversification potential relative to traditional assets such as stocks and bonds. Stocks and bonds should respond in opposite ways to changes in real growth. But both tend to do poorly

Figure 1
Commodity excess returns and unexpected inflation

We believe the correct way to compare any asset relative to inflation is by comparing excess returns of the asset relative to cash against unexpected inflation (here defined as year-over-year inflation less its five-year moving average). This is because cash returns have typically been highly correlated to expected inflation so their exclusion from the analysis represents a purer measure. Based on the total return of the GSCI Light Energy Index in USD. Cash return defined as 3-month US Treasury Bill rate. Source: Datastream, Invesco analysis. Data as at August 2016.
in conjunction with rising inflation, at least in the short-term, whereas commodities tend to do well (figure 2).

**Commodities and investment returns**

One would think that several decades would be sufficient for practitioners and academics to agree on whether an asset should deliver positive excess returns over the long term. But, no such agreement yet exists for commodities, with even some relatively recent papers debating the asset class' merits. However, at its core, commodity investing relies upon the central tenet of any successful investment strategy: buy low, sell high.

Backwardation, a phenomenon characterized by further-dated commodities trading at a discount to the current spot, represents one of the most appealing and direct applications of this simple concept. In the absence of any forecast, prices should naturally rise to the spot level as the investor moves forward in time. Specific situations may make holding the more dearly priced contract the more attractive option, but most traditional investment strategies will always favour the purchase of the discounted asset.

In 1930 Keynes coined the term “normal backwardation”.

In 1930 Keynes coined the term “normal backwardation”. Subsequent research has clearly proven that backwardation is not normal for most assets. These assets trade in contango, where the more distant asset trades at a premium to the spot price, and therefore tends to cause investors to buy high and sell low. Some investors find this set of facts - most assets trade in contango on average, and contango often generates negative returns - sufficient to avoid the asset class. We believe that this ignores the potential return that is equally clear from the research.

Specifically, we’ve identified four return drivers for the asset class: storage difficulty, equal risk contribution, optimal roll yield and tactical allocation. Of these four, storage difficulty deserves primacy. It stems from the work of several economists, including Working and Kaldor, and argues that commodities that are difficult to store, or simply scarce, will tend to trade in backwardation.

The subsequent challenge lies in defining which commodities exhibit this scarcity or high storage cost. Normal inventory levels for commodities vary widely relative to consumption, as each commodity has its own idiosyncratic market structure. A typical inventory-to-demand relationship in wheat, for instance, offers little insight into industrial metal
Risk & Reward, Q4/2016

dynamics. Thus, to standardize our view of the storage situation across commodities, we use a market-based proxy: the long-term average return of each commodity, based on its term structure. The historic excess returns of three groups of commodities ranked on this basis (attractive: top 30%, moderate: middle 40%, poor: bottom 30%) clearly support the initial hypothesis (figure 3, right).

This process of evaluating each commodity’s attractiveness serves as the foundation for how we structure commodity allocations within a multi-asset portfolio and individually. The live results since autumn 2008 are consistent with our expectations based on historic simulations, and reinforce our conviction that common commodity indices (figure 3, left) are a suboptimal ways to gain commodity exposure.

Commodities within a multi-asset portfolio
One of the key goals of our multi-asset portfolio is to be resilient in the face of economic shocks. This leads us to link assets to specific economic environments and then determine portfolio weights based on risk contribution. The later step instills confidence that we own the right amount of an asset in the event the environment occurs.

We use a parsimonious portfolio structure based on the three main environments (figure 4). Different asset classes are expected to do well in different environments, and target risk contributions determine the allocations.

In our view, the risk target for each economic environment should be at least 10% of total portfolio risk. Otherwise, the investor would gain insufficient

Figure 4
The portfolio structure of Invesco’s Global Asset Allocation Team

**Inflationary growth**
High correlation with unexpected inflation

**Examples:**
- Commodities
- Direct real estate
- Infrastructure
- Inflation-linked bonds

**Non-inflationary growth**
Positive beta to real economic growth

**Examples:**
- Developed equities
- Emerging equities
- Private equity
- High yield/credit

**Recession**
Effective “shock-absorber” during recessions and crises

**Examples:**
- Long-term government bonds (hedged)

Source: Invesco. For illustrative purposes only.
A higher equity weight requires a higher inflation hedge allocation, due to the relatively high volatility of equities (figure 5). In addition, the inflation hedge allocation needs to rise if commodities do not comprise the entire inflation hedge. This is due to the higher volatility of commodities relative to other inflation-hedging assets such as direct real estate.5

Conclusion
We believe commodities offer important potential benefits, including the ability to hedge against unexpected inflation and diversify a portfolio of stocks and bonds. Investors could consider pursuing commodity strategies that take advantage of techniques that have historically benefitted returns (such as investing in commodities that are normally in backwardation), and eschew those that largely rely on production weighting (such as following conventional indices). Ultimately, the proper allocation into commodities depends on a number of factors, such as the base portfolio’s equity weight and whether commodities are the exclusive inflation hedge in the portfolio.

Notes
Reducing the volatility of global listed real estate

by Joe V. Rodriguez, Darin Turner and James Cowen

In brief
Triggered by the global financial crisis in 2008, volatility of listed real estate equity suddenly rose and has stayed high ever since. This presents a challenge for investors who value real estate for its diversification and income potential, but cannot invest in physical properties due to liquidity and lot size constraints. With our Listed Full Capital Structure Approach to real estate, we have developed a way forward: by investing in listed, property-linked fixed income alongside real estate equities, investors have the possibility to achieve diversification and current yield without sacrificing liquidity, while potentially also enjoying competitive total returns. At the same time, portfolio volatility may stay within the investors' acceptable bounds.

Real estate is commonly viewed as a way to diversify a portfolio and generate current income – whether it is held privately (i.e. physically owning individual commercial properties) or as publicly traded stocks in listed real estate companies. But there are drawbacks to either alternative: private real estate is not very liquid, and since the global financial crisis in 2008, listed real estate has become a lot more volatile. We show how investors can continue to enjoy the relatively stable income of real estate while maintaining liquidity and an volatility profile they consider acceptable.

Before the global financial crisis, adding listed real estate to a portfolio of global equities and bonds provided a way to lower portfolio volatility. But this has changed since the onset of the global financial crisis in 2008, with a material rise in listed real estate's beta versus global equities (figure 1).

One method to potentially reduce the volatility of a listed real estate investment is to add property linked fixed income to the investment mix. We call such a strategy the "Listed Full Capital Structure Approach", since it invests not only in listed real estate equity (i.e., common stock of publicly traded REITs and real estate related companies around the world), but also in Commercial Mortgage-Backed Securities (CMBS), REIT preferred stock and REIT corporate notes, as well as bonds. Adding these financial instruments

Figure 1
The volatility spike: Global listed real estate equity vs. global equity

Rolling 10-year beta vs. global securities

Source: Invesco Real Estate and Zephyr StuleAdvisor using data from FTSE and Bloomberg. Global listed real estate equity represented by FTSE EPRA/NAREIT Developed Index (gross of withdrawal tax), global equity represented by MSCI World Index. Data from January 1990 to June 2016.
can have a stabilizing impact on the risk and return profile of a portfolio, potentially lowering volatility and raising current income, ideally without a loss in total return.

**The potential benefits of investing across the capital structure ...**

Fixed income returns have been generally less volatile than equity returns; and daily traded CMBS has even shown lower volatility than private real estate, which is valued on a periodic basis (figure 2a). Therefore, it comes as no surprise that the Listed Full Capital Structure Approach has been less volatile than pure listed real estate (figure 2b).

This raises the question: does adding property-linked fixed income lead to a higher correlation with traditional corporate bonds?

There has been some evidence of this, in particular for bonds of investment-grade quality. However, this correlation has been declining, and over the past ten years it has even been negative: US BBB-rated CMBS (which are less driven by interest-rate changes than...
higher-quality CMBS) had a return correlation of -0.17 with US corporate bonds, whereas the correlation with US private real estate was 0.29 and the correlation with US listed real estate equity a fairly high 0.60. Thus the return pattern of CMBS has had a lot in common with that of listed real estate equities, while property-linked fixed income has been less volatile.

Figure 3
Income in comparison

<table>
<thead>
<tr>
<th>Yield in %</th>
<th>Global listed real estate equity</th>
<th>Global equity</th>
<th>Global bonds</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4.3</td>
<td>3.8</td>
<td>2.7</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td>2.5</td>
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</table>

Source: Invesco Real Estate, FTSE and ODCE. Global listed real estate equity represented by FTSE EPRA NAREIT Developed Index (net of withdrawal tax), Listed Full Capital Structure Approach represented by an Invesco Global Real Estate Income Strategy representative account with 30-70% common equity exposure, global equity is represented by MSCI World Index, global bonds represented by Barclays Global Aggregate Bond Index. Data as at 30 June 2016.

Figure 4
Listed Full Capital Structure Approach outperformance

<table>
<thead>
<tr>
<th>Annualized total return (in USD) in %</th>
<th>Listed Full Capital Structure Approach</th>
<th>Private real estate</th>
<th>Global listed real estate equity</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>6.8</td>
<td>5.4</td>
<td>4.3</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
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Source: Invesco Real Estate, ODCE and FTSE. Private real estate represented by a blend of 80% ODCE Core Fund Index Value-Weighted Total Return and 20% Pan European Property Funds Index, global listed real estate equity represented by FTSE EPRA NAREIT Developed Index (net of withdrawal tax), Listed Full Capital Structure Approach represented by an Invesco Global Real Estate Income Strategy representative account with 30-70% common equity exposure, total return in USD, gross of fees. Data from July 2006 to June 2016.

The addition of property-linked fixed income investments to a portfolio of listed real estate stocks also has the impact of raising current income (figure 3).

... and its possible limitations

An argument against the Listed Full Capital Structure Approach might be the potential loss of total return by adding fixed income. In a strong bull market, any investment with a lower beta could result in underperformance vs. pure listed real estate equity. However, such market conditions were ephemeral, and in a more mature or volatile phase of the investment cycle, fixed income offers a hiding place from higher beta investments with declining multiples or earnings, while the higher income characteristics support the overall total return opportunity.

In a more normal environment, where the capital markets move up and down within valuation boundaries reflecting investor sentiment, the ability to dynamically adjust allocations between the different parts of the capital structure can also be beneficial. The Listed Full Capital Structure Approach would have delivered competitive total returns compared to both a pure listed real estate equity portfolio and private real estate over the past decade (figure 4).

The most notable limitation with this strategy lies in the fact that the property-linked fixed income investment universe is heavily US focused and USD-denominated, as the US offers a more mature market than other regions of the world. While CMBS are also issued in the United Kingdom, continental Europe, Japan, Australia and Canada, these markets are generally still at differing stages of maturity. Additionally, liquidity and availability of some specific property-linked fixed income issues can be low – which needs to be considered when constructing a portfolio.
Conclusion
Listed real estate investment portfolios, even with the addition of property-linked fixed income, are always likely to be more volatile than private real estate (figure 5). But, many real estate investors need the liquidity that private real estate cannot provide, or they are limited by private real estate’s large lot size constraints. At the same time, with markets driven by sentiment and monetary policy expectations, listed real estate equity returns are unlikely to become as stable as they were before 2008. In this environment, investors who desire real estate investment exposure, liquidity and a relatively attractive income return profile with the prospect of a return volatility they regard as acceptable, could consider the Listed Full Capital Structure Approach to real estate investing.

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Note
1 Source: Invesco Real Estate, FTSE, ODCE and S&P. US private real estate represented by ODCE Core Fund Index Value-Weighted Total Return Index, US listed real estate equity represented by FTSE NAREIT All Equity REITs Index, US BBB-rated CMBS represented by Barclays BBB CMBS Index, US corporate bonds represented by the Barclays US Aggregate Bond Index. Based on monthly data from July 2006 to June 2016.
Important Information

Data as at 31 October 2016 unless otherwise stated.

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