FIDANTE PARTNERS

The Long View

Market Returns 2019 - 2029

Joachim Klement, CFA
Head of Investment Research

1 November 2018

This report is the final part of our four-part research project on the building blocks of long-term returns for different asset classes. In this report we derive the expected returns for a wide range of traditional and alternative investments for the next ten years. We show that fixed income investments are very unattractive with few exceptions in the alternative credit space. Equity market returns are expected to be below historical averages, but given higher dispersion between countries and regions, there are still good opportunities to be found. The best investment opportunities, in our view, can be found in alternative investments.

Contents

Executive Summary

First, we have to apologise to our readers (and editors). Normally, we aim to keep our thematic reports below 10 pages and our flagship reports like "The Long View" below 15 pages. We do this for two reasons. First, in our experience, reports with more than 10 to 15 pages will not get read by investment professionals because they simply don't have the time to do it. Second, we try to keep our reports short because that is what you told us you wanted in our last annual reader survey. According to our readers, the optimal length of a report is between 5 and 10 pages. Unfortunately, this report is more than 20 pages long, which is why we have added this executive summary and a table of contents above. But hey, at least our report on expected long-term returns for different asset classes is not 100 pages like the reports of some other firms.

This report is the capstone on the series of four reports published throughout the year to develop our methodology for estimating long-term expected returns. In it, we will put the insights of the last three reports to work and develop our expected returns for the next ten years across all asset classes. In order to make life easier for our readers, we have split the content in different sections by asset class, each of which can be read in isolation:

- The next section deals with the inevitable challenges of forecasting and provides readers with insights into **estimation errors** and their impact on long-term return forecasts. Everyone who thinks that returns for stocks and other asset classes are more predictable over long investment horizons needs to read this section. In it, we will show why this notion of more predictable long-term returns is not correct in practice. In fact, forecast errors grow as forecast horizons increase.
- The subsequent section (the third in this report) focuses on the variable that has more influence on our long-term return forecasts than any other variable: the **future path of interest rates**.
- After discussing our methodology for deriving the future path of interest rates over the next decade, we develop our return **forecasts for government bonds, corporate bonds and selected credit instruments**. This section is essentially a recap of the more extensive discussion in the last "edition of "The Long View" published on 23 August 2018.
- Because we are forecasting international assets as well as domestic assets, we have to be able to forecast expected foreign exchange rate movements. We do this following a recently published paper of the European Central Bank with the provocative title **"Exchange rate forecasting on a napkin"**. If you want to know how exchange rate movements can easily be forecast with high reliability, you should read this section.
- The sixth section will discuss long-term secular bull and bear markets in equities and their impact on long-term returns. We will also discuss the question that seems to be on everybody's mind these days, namely, whether the current bull market is a bubble and if so, whether it is going to crash. This section will eventually lead into the subject matter that many of our readers are likely to be most interested in: our long-term **forecasts for equities** (hint: it is not as bad as some may think).
- Section seven will make the bridge from traditional asset classes into alternative asset classes. We employ a simple trick to create return forecasts that are consistent with our equity and fixed income return forecasts. We use the methodology developed for equity investments to estimate long-term returns for listed alternative investments and then add an adequate illiquidity premium to arrive at return forecasts for illiquid direct investments. It may or may not surprise our readers to learn that **alternative investments are where many of the most attractive, high-return opportunities can be found** over the next ten years.
- The last section is a special focus on the expected returns for insurance companies subject to **Solvency II requirements**. The risk-adjusted capital requirements under Solvency II turn some of the most attractive investment opportunities in the

fixed income space into some of the most unattractive and frankly uninteresting investments. However, some alternative investments become even more attractive for insurance companies under Solvency II than for other investors.

- To finish this paper, we have two appendices. The first appendix provides overview tables of the expected risk and return characteristics of each asset class in our model both in local currency and in Sterling, as well as the risk-adjusted returns under Solvency II. The second appendix is the usual appendix included in every edition of "The Long View" with the latest valuation data for equities and alternative investments (including the always popular CAPE ratio).

We hope this report will help readers think about long-term expected returns and how to position their portfolios for the coming decade. By explaining our methodology, we want to make all our assumptions as transparent as possible. Our readers may or may not agree with these assumptions, but our methodology is flexible enough to accommodate alternative assumptions about the future path of interest rates, earnings growth, valuation changes, etc. We are happy to engage with our readers in a conversation about these assumptions and stand ready to develop **bespoke long-term expected returns for individual clients** based on their own assumptions about the future. It would be a pleasure for us to work on such bespoke projects for our clients, and we look forward to hearing from you.

Possibly the most interesting disclaimer in history

This instalment of "The Long View" concludes our series of four reports on long-term return drivers and the return outlook for asset classes over the next ten years. In the first part, published on 22 February 2018, we focused on the valuation of stock markets and alternative investments. As always, an updated table of current valuations of stock markets and investment themes can be found in Appendix 2 of this report.

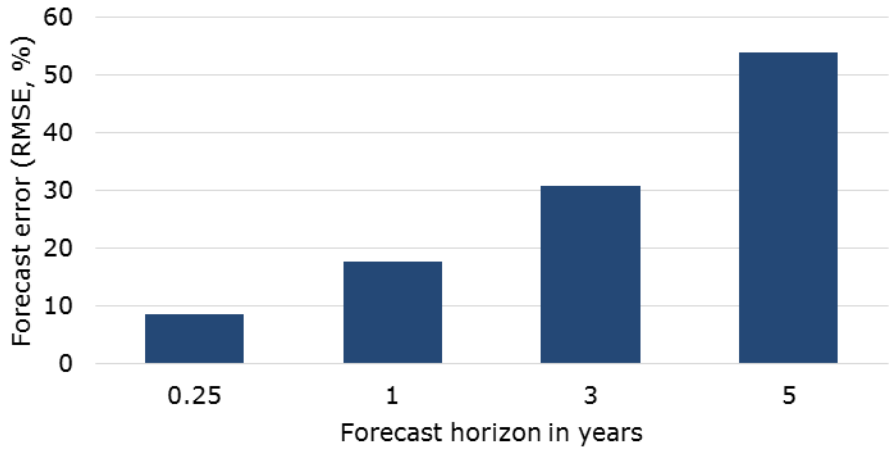
In the second report, published on 8 May 2018, we focused on the relationship between earnings growth and GDP growth and developed our methodology to forecast long-term earnings growth trends. Finally, the third part in our series, published on 23 August 2018, focused on the role of income in generating long-term returns and explained in detail our methodology for estimating fixed income returns for the coming ten years.

In this report, we want to put all the parts together to develop the expected returns for all asset classes for the next ten years. In the future, we will update these long-term return forecasts on an annual basis.

But before we discuss our return expectations for the different asset classes in some detail, we need to caution our readers about the predictability of long-term returns. Forecasting long-term returns may appear to be simple, but it is not easy.

Fig. 1 shows the estimation errors of the equity risk premium (i.e. excess returns of equities over short-term Bills) for the US stock market for different forecasting horizons ranging from one quarter to five years as calculated by Ivo Welch and Amit Goyal.[1]

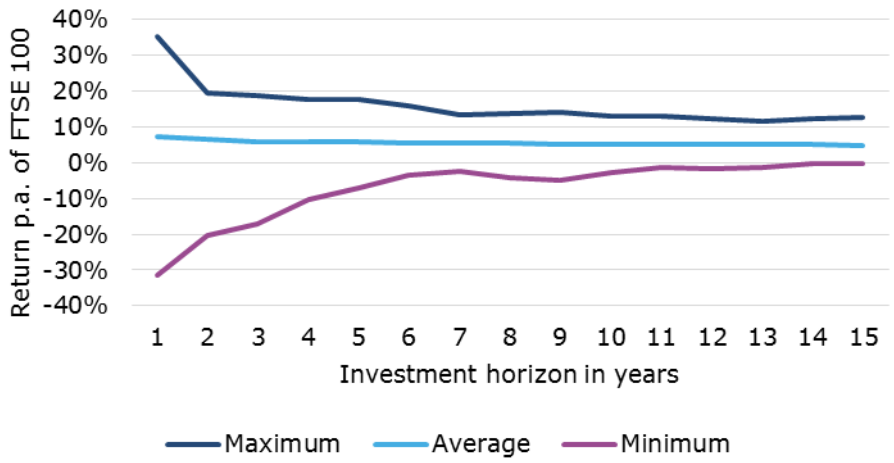
Fig 1: Forecasting errors for the equity risk premium



Source: Welch and Goyal (2008), Fidante Partners.

[1] Welch, I. and A. Goyal (2008). "A comprehensive look at the empirical performance of equity premium prediction." *The Review of Financial Studies*, vol. 21 (4), pp. 1455-1508.

Fig 2: Return dispersion and investment horizon



Source: Bloomberg, Fidante Partners. Past performance is not a reliable indicator of future results.

The figure shows clearly what may come as a surprise to some readers, namely that forecasting errors increase as the investment horizon increases and these forecasting errors are significant. For a one-year forecast the root mean squared error (RMSE) is 17.8% in their most elaborate model (i.e. one that uses as many variables as possible, aptly named the "kitchen sink model").

If, for example, a model predicts that equities will have a risk premium over Bills of 10% in the next twelve months, then there is a 67% probability that the risk premium will be between 8.2% and 11.8% and there is a 95% probability that the risk premium will be between 6.4% and 13.6%.

For a five-year forecast, the error is much bigger. Assume for instance that we expect equities to outperform Bills by a total of 50% over the next five years, then there is a 67% chance that the risk premium will be between 23% and 77%, and a 95% probability that the risk premium will be between -3% and 103%.

A typical response by investors to these results is that this is not a problem, because returns tend to revert to the mean over time so that uncertainty regarding long-term returns should decline as the investment horizon increases. This argument is flawed in two respects.

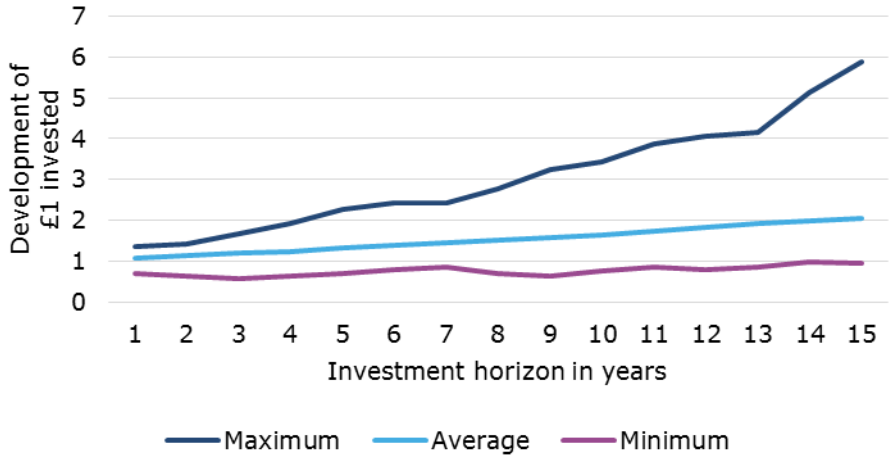
First, a study by Lubos Pastor and Robert Stambaugh[2] showed that the effect of estimation errors is much bigger than the opposing effect of reversion to the mean. The intuition behind this insight is the following. Assume that the true equity return over the next year is 10%, but the forecaster estimates a return of 11% – a small estimation error of just one percentage point and as we have seen above well within the realm of possibility.

Thanks to the wonder of the world that is compound interest, stock markets will have appreciated by 259% after ten years, while the forecast would predict an appreciation of 284%. Pastor and Stambaugh showed that this compounding error overwhelms any effects of mean reversion.

The second error investors sometimes make when they talk about mean reversion is to look at annual returns and the distribution of outcomes. Fig. 2 shows the historic range of returns for the FTSE 100 index for different investment horizons ranging from 1 to 15 years. As the investment horizon increases, the difference between the best and worst possible outcome narrows and returns seemingly become more predictable.

[2] Pastor, L. and R. F. Stambaugh (2012). "Are stocks really less volatile in the long run?" *The Journal of Finance*, vol. 67 (2), pp. 431-478.

Fig 3: Wealth dispersion and investment horizon



Source: Bloomberg, Fidante Partners. Past performance is not a reliable indicator of future results.

But if we look at Fig. 3, which represents exactly the same data as Fig. 2 but instead of returns we focus on what really matters, namely the development of £1 invested in the FTSE 100. The difference between the best and worst outcome does not decline as the investment horizon increases. Instead, it increases over time or, in other words, the estimation error of the portfolio value increases.

All of this is to say that the return forecasts we present in the subsequent paragraphs are subject to significant estimation errors and investors should not put too much emphasis on one particular number. When constructing portfolios, traditional Markowitz portfolio optimisers are very sensitive to the value of the expected return for each asset class, which is a shame because it means that portfolios constructed with these optimizers are highly unstable and unreliable as a guide to strategic asset allocation. More robust optimisers that take estimation errors for future returns into account should be used by practitioners to avoid misallocations of capital that can have severe consequences for long-term returns.

Having said that, we now move on to a discussion of our ten-year expected returns for different asset classes starting with money market and bond investments, then moving on to equities and finally to alternative investments. At the end of this report in Appendix 1, readers can find the overview of our return forecasts.

> “Forecasting long-term returns may appear to be simple, but it is not easy.”

The path towards interest rate normalisation

One of the key questions for the next decade – if not *the* key question – is, what path interest rates will take? In the US, the Federal Reserve has managed to increase monetary policy rates from essentially zero to somewhere close to the neutral rate of interest. In the next twelve months it is likely going to increase rates some more in order to curb inflation, but it is likely that the Fed is relatively close to the end of this hiking cycle.

In the UK and the Eurozone, on the other hand, central banks are still stuck at very low interest rates and have just started to unwind their asset purchasing programmes. As economic growth is likely to enter a cyclical downturn in the coming years, it is more than uncertain whether the Bank of England (BoE) and the European Central Bank (ECB) will be able to normalise interest rates soon. Quite frankly, the future path of monetary policy is one of the biggest uncertainties of the coming decade for European assets.

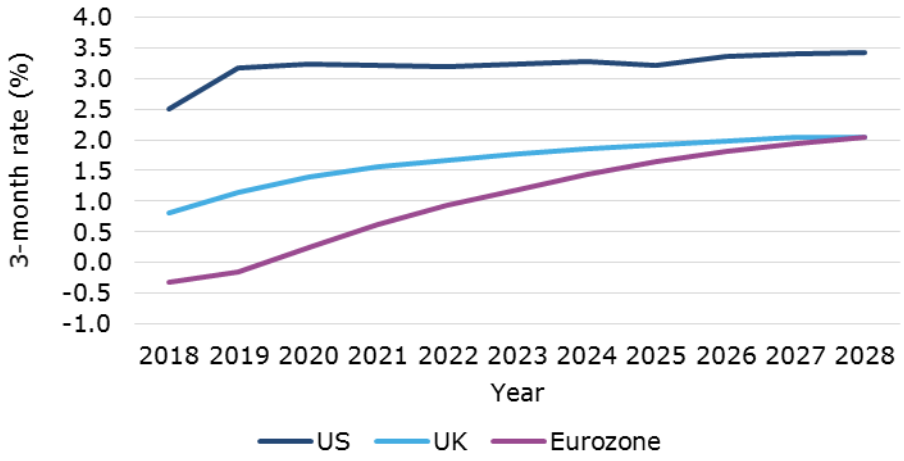
We do not dare to predict monetary policy a decade in advance, but thankfully, the market is doing it for us, to some extent. Forward swap rates for 3-month rates allow us to infer future short-term interest rates from investment instruments traded in financial markets. Obviously, these future short-term rates may well be wrong, but that does not necessarily mean that it is possible to create a forecast that is more accurate than these market implied rates.

In Fig. 4 we show the currently expected path for 3-month interest rates in the US, the UK, and the Eurozone. For the US, markets expect 3-month rates to rise to 3.1% at the end of 2019 and then slowly drift towards 3.4%.

In comparison, swap markets currently expect 3-month interest rates in the UK to trend toward 2.0% in ten years with an accelerated increase in 2019 and 2020 as the Bank of England tries to normalise rates. Of course, the influence of Brexit is one of the main risk factors to this outlook since a hard Brexit could easily derail growth and spark import price inflation that forces the BoE to change course rather abruptly in 2019.

Finally, swap markets expect a more drawn out increase in Eurozone interest rates as the ECB is far behind its counterparts in the UK and the US. As a result, the overall difference between current interest rates and expected interest rates in ten years is much larger in the Eurozone than in the UK and the US, which has significant implications for the returns of government and corporate bonds.

Fig 4: Market implied 3-month rate path



Source: Bloomberg, Fidante Partners.

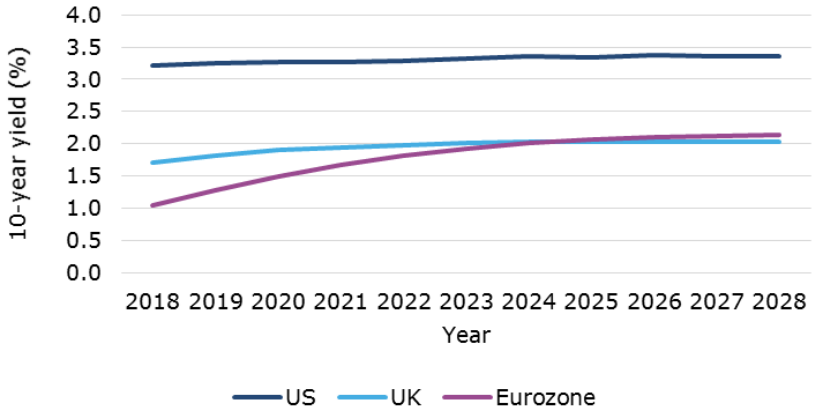
Bond returns in times of rate normalisation

A normalisation of short-term rates will also impact long-term government bond yields. Fig. 5 shows the expected path for 10-year government bond yields in the US, the UK, and the Eurozone. While 10-year yields in the US and the UK are expected to remain relatively stable, Eurozone yields are expected to rise from 1% now towards 2.0% in 2024 and then remain roughly stable from there on.

In our last edition of "The Long View" we discussed in detail how we calculate expected returns for government and corporate bonds from these market implied shifts in yield curves. In short, we follow a building block approach analogous to our building block approach to equities:

- We first calculate the effect of a parallel shift in the government bond yield curve on the price of bonds. A parallel shift creates a valuation change that is negative if the yield curve is expected to move upwards (as is the case for all major developed markets at the moment).
- The second building block is the yield income from holding a single bond or a portfolio of bonds. This yield income equals the coupon of the bond in the case of a single bond and the average yield for a bond portfolio.
- Third, as the investor holds the bonds, they move closer to maturity. This provides the investor with a roll yield from moving along the yield curve from right to left.
- For corporate bonds and alternative credit investments there is an additional return component from the credit spread and the potential default of individual bonds. To model this credit income we assume that option-adjusted spreads (OAS) over government bond yield curves revert to their historic mean over the next ten years.
- In order to estimate credit losses from rating downgrades and defaults we use credit loss estimates of 40% of the OAS at the beginning of the period – a simple formula derived from historic relationships.

Fig 5: Market implied 10-year yield path



Source: Bloomberg, Fidante Partners.

Fig. 6 shows the expected return for government bonds in six major regions in local currency and in Sterling (unhedged). In order to calculate Sterling returns we used the expected exchange rate movements over the next ten years as explained in the next section. If we compare the values in Fig. 6 with the expected money market returns shown in Fig. 2 in Appendix 1 we see that outside the US and the UK, government bond returns are expected to be on average below money market returns. In the US and the UK, government bond returns are expected to be a mere 0.1 percentage points per year above money market returns. The main cause for these low expected returns is the expected increase in government bond yields over the next ten years. In short, unless

government bonds are used in a liability driven investment portfolio to hedge interest rate risks of existing liabilities, there is no reason to invest in government bonds in the coming ten years.

Fig 6: Expected returns for government bonds

Region	Return	In GBP	Volatility
USA	2.9%	0.9%	4.1%
UK	1.5%	1.5%	6.9%
Eurozone	0.1%	-1.3%	4.3%
Switzerland	-1.3%	-3.2%	3.9%
Sweden	0.1%	0.8%	4.4%
Japan	-0.1%	0.6%	1.8%
Australia	2.1%	0.1%	3.4%

Source: Fidante Partners. Forecasts are subject to estimation errors and may deviate significantly from the performance shown.

Fig. 7 shows our return expectations for corporate bonds and alternative credit investments, such as senior loans and CLO debt tranches. Traditional corporate bonds – whether investment grade or high yield – tend to have relatively low expected returns due to the expected upward shift in the yield curve, as well as an expected widening of OAS as economic growth slows down and credit spreads normalise towards long-term averages.

However, while investment grade corporate bonds are expected to show essentially the same returns as money market and government bond investments, high yield bonds typically offer a return advantage of 2% to 2.5% over government bonds. This is not a lot, but in a yield starved environment, it can help investors achieve portfolio returns that are above inflation. Nevertheless, the risks of high yield bond investments are material. The fact that investors need to invest in credit instruments with twice the volatility of government bonds in order to have a decent chance of beating inflation tells us that there is no safe asset anymore. Investors looking for a "sleep well asset" need to be aware that these assets simply do not exist anymore.

Fig 7: Expected returns for credit investments

Asset class	Return	In GBP	Volatility
US Inv. Grade	3.4%	1.4%	5.0%
US High Yield	5.4%	3.4%	8.6%
Em. Market Debt ($)	4.6%	2.6%	6.8%
Em. Market Debt (LC)	5.2%	3.2%	10.3%
Senior Loans	4.9%	2.9%	6.2%
CLO Senior	4.4%	2.3%	0.8%
CLO Mezz.	7.3%	5.3%	5.5%
UK Inv. Grade	1.7%	1.7%	6.6%
EU Inv. Grade	0.1%	-1.2%	3.5%
EU High Yield	2.3%	1.0%	9.8%

Source: Fidante Partners. Forecasts are subject to estimation errors and may deviate significantly from the performance shown.

There is, however, some relief to yield-starved investors in the alternative credit space. We do not have a model for long-term expected returns in ABS, MBS or private debt investments at the moment (though we will try to change this in the future), but we do have a reliable model for long-term expected returns on senior loans and CLO debt tranches.

And despite the rise of covenant-lite loans in this space since the financial crisis, which we have modelled by assuming a 50% higher default rate than in the past, the expected returns for senior loans, as well as senior and mezzanine debt tranches of CLOs, remain significantly above government and investment grade corporate bond returns.

Expected returns for senior loans in US Dollars are somewhat lower than for US high yield, but the volatility of these investments is also significantly lower, which means that risk-adjusted returns for senior loans are higher than for US high yield bonds. For CLO debt tranches, both absolute returns and risk-adjusted returns are significantly higher than for traditional corporate bonds with a similar rating. Both CLO and senior loans are not too popular with investors due to the unknown default risks from covenant-lite loans in a recession, but our model shows that these risks are currently more than adequately compensated by higher returns.

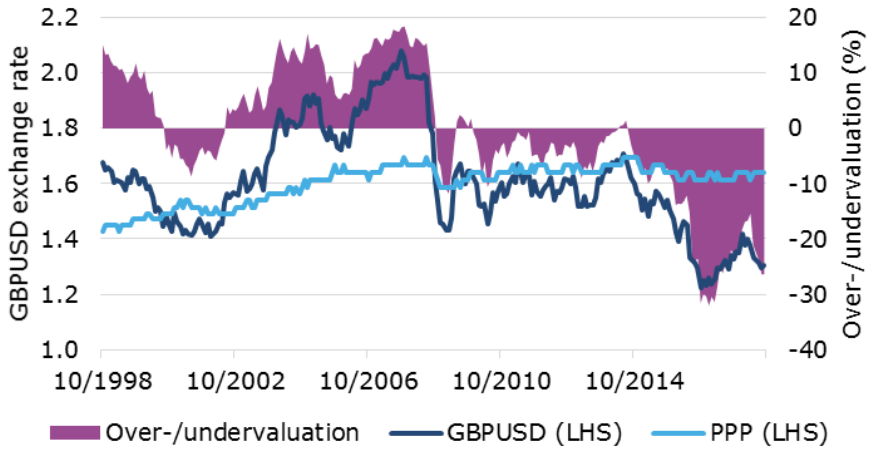
Currency returns or: All hail Sterling

In Fig. 6 and Fig. 7 above as well as in all the tables in Appendix 1 we show not only expected returns in local currency but also in Sterling. In order to forecast expected exchange rate movements over the next ten years we rely on the well-established empirical fact that real exchange rates (i.e. exchange rates adjusted for the different local inflation levels) revert to the level implied by the purchasing power parity (PPP). Second, our model assumes that this reversion towards purchasing power parity is driven by adjustments in the nominal exchange rate and not by adjustments in relative inflation levels. This second assumption is well-established in countries with a flexible exchange rate regime. Thus, our methodology is applicable to the G10 currencies of the biggest developed markets, but not to a regime of managed exchange rates as occurs in China, Russia and other important emerging markets.

Our model follows the methodology explained in great detail by Michele Ca' Zorzi and Michal Rubaszek.[3] In order to calculate the purchasing power parity we use the Bloomberg PPP model based on producer price indices. We use producer price indices instead of consumer price indices because the basket of goods and services used to calculate consumer prices tends to be full of goods and services that are not fungible across borders. For example, consider the cost of a haircut in country A and country B, which might have very different inflation rates – there is no reason that the relative prices of haircuts between the two countries should converge over time, because people rarely cross borders in order to get a haircut. The baskets used to calculate producer prices, on the other hand, tend to be more flexible and adjust more readily to relative differences in purchasing power.

Fig. 8 shows the exchange rate of Sterling in US Dollar over the last twenty years together with the PPP and the over- and undervaluation of Sterling relative to the US Dollar. As is evident in Fig. 8 relative differences in valuation can persist for a very long time, but Ca' Zorzi and Rubaszek show that about one fifth of the existing over- or undervaluation of a currency is removed in any given year, or about half the valuation difference in three years. Such a simple asymptotic adjustment model with a "half-life" of the adjustment of three years performs very well in practice.

Fig 8: Sterling in US Dollar and purchasing power parity



Source: Bloomberg, Fidante Partners. Past performance is not a reliable indicator of future results.

[3] Ca' Zorzi, M. and M. Rubaszek (2018). "Exchange rate forecasting on a napkin." European Central Bank Working Paper No. 2151.

Fig. 9 summarises the expected exchange rate movements vs. Sterling over the next ten years. Because Sterling currently is undervalued against most currencies, we expect the US Dollar and the Australian Dollar to depreciate by about 2% per year and the Euro to depreciate by about 1.4% per year against Sterling. UK investors are thus well advised to increase the home bias in their portfolios for the foreseeable future as foreign currency investments face a potential penalty in the form of currency depreciation. However, we stress at this point, that this model does not include any currency movements triggered by the Brexit negotiations. Should the UK crash out of the European Union, it is not unreasonable to expect another depreciation of Sterling against the Euro and the US Dollar. If, on the other hand, an agreement can be found that benefits both the UK and the European Union, we should expect Sterling to appreciate rather quickly.

Fig 9: Expected exchange rate movements

vs. GBP	Return	Volatility
USD	-2.0%	9.5%
EUR	-1.4%	9.8%
CHF	-1.9%	11.8%
SEK	0.7%	10.2%
JPY	0.7%	14.9%
AUD	-2.0%	12.0%

Source: Fidante Partners. Forecasts are subject to estimation errors and may deviate significantly from the performance shown.

Equities between secular bulls and bears

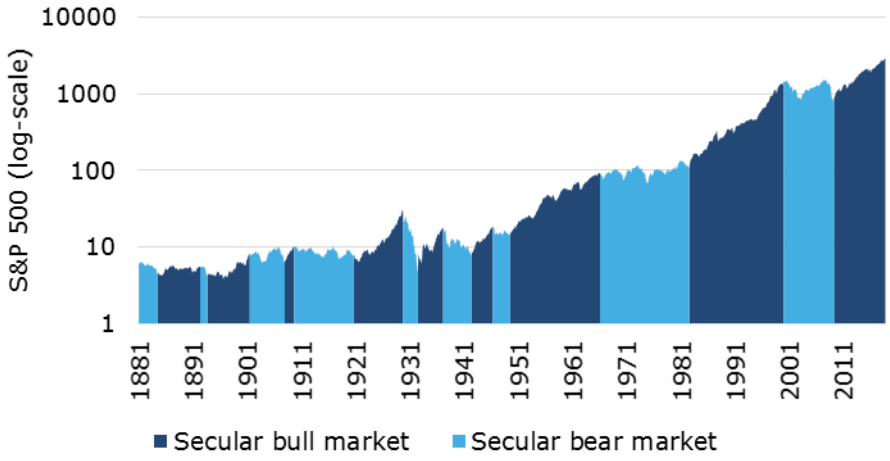
As we have seen in the case of fixed income investments, long-term secular cycles in interest rates typically have a dominant influence on long-term return forecasts. Equities are no exception to this rule and many investors are wondering, whether equity market returns can remain as high as in recent years. Over the last ten years, we have experienced an almost uninterrupted bull market driven first by the recovery in earnings following the recession of 2008 and 2009, then prolonged by zero-interest rate policy and quantitative easing by central banks, and most recently (again) driven by strong earnings growth as the global economy went into full swing. Fig. 10 shows the secular bull and bear markets in the US since 1881. As is often the case we have identified secular bull and bear markets with the help of the cyclically adjusted PE-ratio (CAPE). Bull markets are characterised by multi-year expansions in the CAPE, while bear markets are defined as multi-year contractions in the CAPE. Given this definition, the current secular bull market has started in April 2009 and is now close to its tenth anniversary.

During this secular bull market, the S&P 500 index has experienced an average annual total return of 16.6%, driven by an average annual earnings growth rate of 10.5% and a valuation expansion that has added about 3.8% per year. Today, the CAPE in the US has reached levels only surpassed at the height of the tech bubble in the late 1990s.

Given the current lofty heights of valuations in US stock markets, many investors wonder, whether we are facing another secular bear market in equities soon. We don't think so.

Our view is based on the observation that valuations in countries outside the US are by no means as extreme as they are for the US (see Appendix 2). And, as we have explained in some detail in "The Long View" on 22 February 2018, other valuation measures like price/book-ratios show a more benign picture at the moment. Given the potential pitfalls in the CAPE ratio (e.g. the possibility of a shifting long-term average in the face of changing accounting rules etc.), we argued back then that we are using the price/book-ratio as our preferred valuation measure since it does not suffer from these potential problems with the CAPE. Another benefit of using the price/book-ratio as a valuation measure is that it allows us to employ the same methodology to forecast listed alternative investments as for equities – something that we will come back to in the next section of this report.

Fig 10: Secular bull and bear markets in the US



Source: R. Shiller, Fidante Partners. Past performance is not a reliable indicator of future results.

Fig 11: Average secular bull and bear markets

	Length in months	Income	Earnings growth	Valuation expansion	Total return
Secular bull	105	2.5%	9.5%	6.4%	18.4%
Secular bear	79	3.1%	-1.3%	-3.2%	-1.4%
Current bull	115	2.3%	10.5%	3.8%	16.6%

Source: Fidante Partners. Past performance is not a reliable indicator of future results.

But let us stay with the current secular bull market as defined by CAPE ratios for a moment. If we assess the current secular bull market in equities, we can see in Fig. 11 that the current secular bull market is by no means exceptional. Going back to 1881, the average length of a secular bull market in the US was 105 months with an average valuation expansion of 6.4% per year. The current bull market is 10 months longer than the average bull market in history, but valuation expansion has been a mere 3.8% per year. Total returns for the S&P 500 in this current secular bull market has been roughly in line with the historic average and while some investors may be worried about the length of the current bull market, a look at Fig. 10 shows that secular bull and bear markets seem to have become longer after the Second World War. The secular bull market of the 1980s and 1990s lasted 209 months and the secular bull market of the 1950s and 1960s lasted 200 months. We do not know when the current secular bull market will end, but there is a significant likelihood it could go on for quite a bit longer.

> We expect emerging markets to outperform developed markets by a wide margin.

Turning our gaze to the coming ten years, we should not expect an imminent end of the current secular bull market, but at the same time we have to anticipate a shift towards a secular bear market at some point in the next decade. In our return forecasts, we reflect these developments both in the way we model valuation changes and in the way we model earnings growth. Since we have developed the three building blocks of our equity return forecast model in the last three editions of this report, we will recap them here only briefly:

- We assume that total payout ratios remain constant over time and equal to the average payout over the last ten years. As we have shown in our last report on 23 August 2018, this is an empirically valid assumption to make.
- We model future earnings growth based on the methodology outlined in our report on 8 May 2018 as a function of expected long-term GDP growth and a normalisation of current profit margins to historic averages. Because this top-down methodology of earnings forecast introduces significant uncertainty (e.g. because profit margins may remain far above average for an extended period of time, as we have seen in the US over the last decade), we complement these earnings forecasts with bottom-up long-term earnings forecasts for the next five years from equity analysts.
- We model valuation expansion and contraction as a reversion of current price/book-ratio to the 20-year historic average. This means that we implicitly assume a reversion not to long-term historical means but to higher historical means that have been established since the late 1990s. The result is a less negative return contribution for overvalued markets.

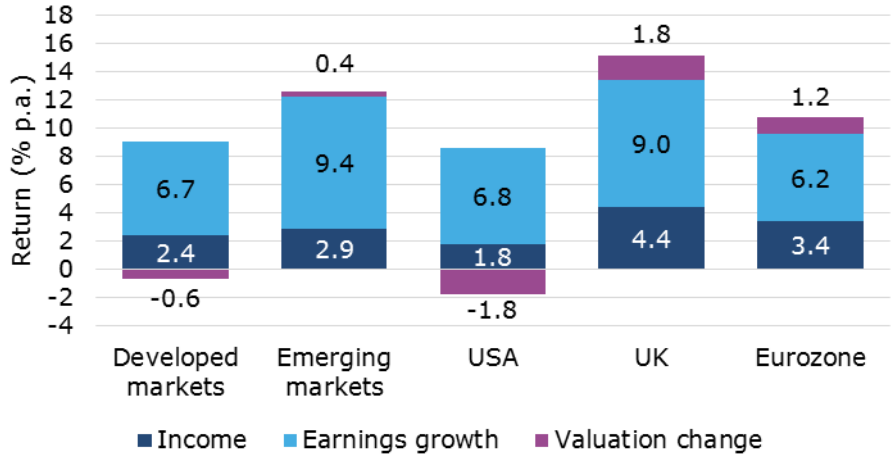
Fig. 12 shows the result of this exercise for developed and emerging markets as well as three major equity regions. The full results for 11 different regions as well as the developed and emerging market aggregates can be found in Appendix 1. Several observations stand out:

- Emerging markets on average have higher expected returns than developed markets. This is driven both by more attractive

valuations as well as higher expected earnings growth due to stronger GDP growth. While developed markets face a negative contribution from valuation changes as valuations decline to long-term averages, emerging market valuations can still expand. This effect results in about 1 percentage point of outperformance of emerging markets. Stronger GDP growth as well as higher inflation in emerging markets should lead to higher nominal earnings growth, which adds another 2.7 percentage points of outperformance. In the end, we expect developed market equities to return a solid 8.3% per year in US Dollar terms (6.2% p.a. in Sterling) while emerging markets may achieve a very high 12.6% p.a. in US Dollars (10.6% in Sterling).

- Unsurprisingly, the US equity market is expected to be one of the worst performing developed markets with a total return of 6.8% p.a. (4.7% in Sterling). This underperformance should mostly be driven by declining valuations that are expected to subtract 1.8% p.a. from total returns.
- Both the Eurozone and UK are expected to outperform global equity markets in the next decade thanks to valuation expansion and solid projected earnings growth. The UK stock market is projected to be one of the best performing stock markets thanks to strong valuation expansion, a high dividend yield and above average earnings growth. The strong earnings growth projection is a reflection of higher GDP growth in the UK compared to the Eurozone or the US, as predicted by the OECD.
- Within emerging markets, India and Turkey are the markets with the highest projected returns in the coming decade. Turkey is mostly driven by valuation expansion after the recent stock market crash, while Indian stocks should benefit from very high earnings growth on the back of a strong economic expansion in the coming decade.
- The two largest emerging markets, China and South Korea, are both expected to have strong returns around 13% p.a. in local currencies, surpassing the return projections for most developed markets by a wide margin.

Fig 12: Expected returns for equity markets



Source: Fidante Partners. Forecasts are subject to estimation errors and may deviate significantly from the performance shown.

Before you start accusing us of being yet another sell side research house that has overly optimistic return forecasts for equities because our commercial interests depend on it, let us put these return forecasts into historical perspective.

Fig. 13 shows our return forecasts for 2019 to 2029 in comparison to the historic returns achieved since 1970. We use the MSCI total return indices since their inception in 1970 as reference since these are also the indices we have used to model future returns. However, for both emerging markets and the Eurozone historic data is only available since 1988. Going back to 1970 implies that our historic comparison covers roughly two secular bull and two secular bear markets.

The comparison in our chart shows that the expected return for developed market equities is about two percentage points (or about one fifth in relative terms) lower than the historic track record over the last 48 years. This expected underperformance relative to historic averages is mostly driven by the low expected returns of the US stock market, which is expected to deliver returns that are about two fifths lower than in the past.

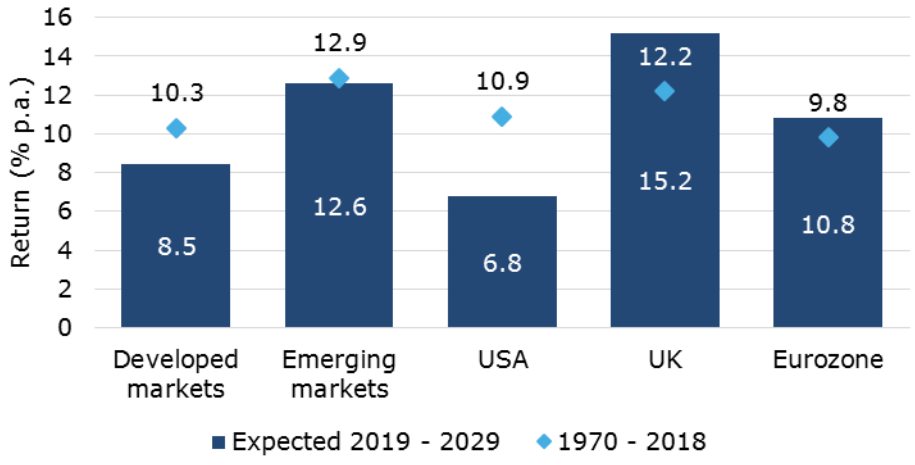
For stock markets outside the US we expect returns that are on average about the same as historic averages.

> Before you start accusing us of being overly optimistic about equities, remember that our expected returns for developed markets are about one fifth lower than the historic experience.

The seemingly high returns for emerging market equities only seem high relative to the lower returns expected for developed markets, while in fact, they are just about average in a historical context. One of the few equity markets in our model that has higher expected returns than the historic record shows is the UK.

What these forecasts also imply is that the return differentials between the US and other developed markets are expected to be bigger in the future than in the past. Since 1970, the performance difference between US equities and the rest of the world has been a mere 0.5 percentage points per year. Over the next decade we expect this return differential to swing in favour of the rest of the world by four percentage points per year – something that happened for example during the 1970s and the 1980s.

Fig 13: Expected and historic returns for equity markets



Source: Bloomberg, Fidante Partners. Past performance is not a reliable indicator of future results. Forecasts are subject to estimation errors and may deviate significantly from the performance shown.

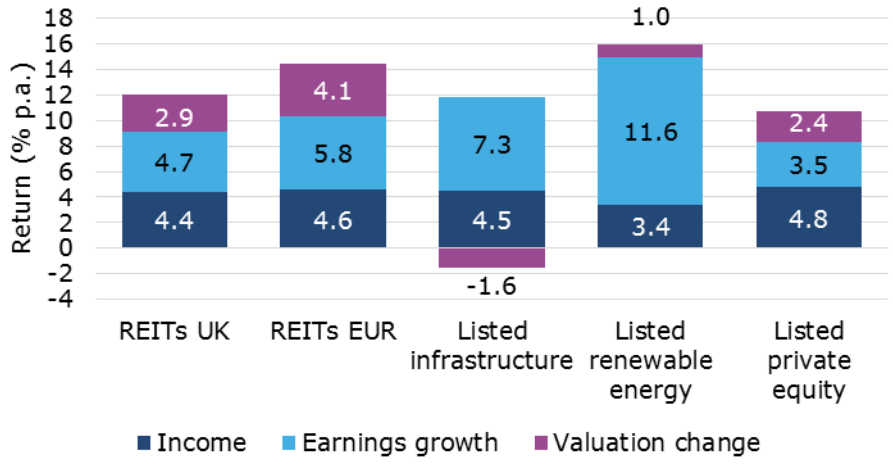
The best opportunities may lie with alternative investments

Equity markets in the developed world are expected to show solid but not spectacular returns in the coming ten years, but in our view, the real opportunities to boost returns can be found in the alternative asset space. The universe of alternative investments has become extremely broad and spans everything from hedge funds and private equity to real assets, such as property or infrastructure. While many of these alternative asset classes are illiquid in nature, the last decade has seen a proliferation of listed alternatives in the form of REITs and other listed invested companies. These listed investment companies provide us with the necessary data to apply the same methodology we used for global equity markets to forecast returns. Once we have derived our long-term return forecasts for these listed alternatives, we can develop return forecasts for illiquid direct investments by adding an appropriate illiquidity premium.

Fig. 14 shows our return forecasts for some of the most important listed alternatives (a full list of return forecasts for different liquid and illiquid alternative investments can be found in Appendix 1):

- REITs tend to have significantly higher expected returns than their local equity markets. This is driven mostly by lower valuations for REITs compared to 20-year historic averages resulting in the expectation of a significant return boost from valuation expansion. Expected returns for Eurozone REITs are particularly high, with an expected return of 14.5% p.a. in Euro (13.1% p.a. in Sterling), thanks in no small part to the attractive valuations still prevailing in many Eurozone countries, like Germany or France. Given the more mature stage in the cycle of UK and US property, expected returns for these regions are lower than in the Eurozone and the UK property market is the only property market in our model that has a lower expected return than the local equity market.
- Listed infrastructure investments have higher expected returns than developed market equities, but given high valuations for some listed infrastructure investments (as evidenced for example by many closed-end funds trading at significant premia to net asset value), total return forecasts are "only" 10.3% p.a. in US Dollars – though calling a 10% return expectation low may be the exaggeration of the year.

Fig 14: Expected returns for listed alternative investments



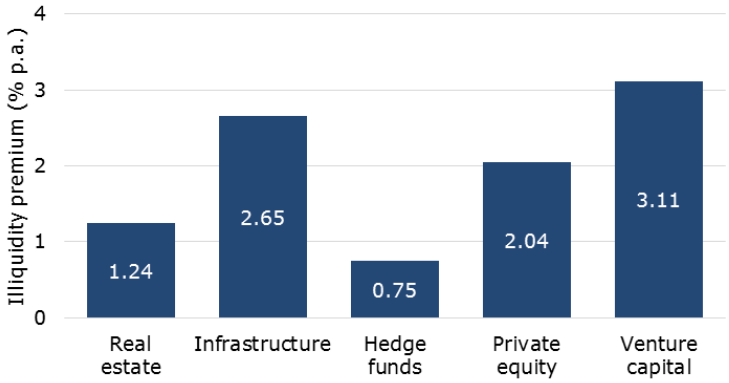
Source: Fidante Partners. Forecasts are subject to estimation errors and may deviate significantly from the performance shown.

- The reason why listed infrastructure returns may appear "low" is because the expected returns on listed renewable energy investments are even higher at 16.0% p.a. Strong growth in the renewables sector translates into much stronger earnings growth expectations for renewables compared to listed infrastructure in general. These differences in expected growth explain most of the return differences between the two asset classes.
- Finally, Fig. 14 shows that expected returns for diversified listed private equity companies are 10.7% p.a. in US Dollars. This is only slightly above the expected return for global equity markets. A closer look at the drivers for these returns shows that the main culprit are lower earnings growth expectations than achieved in the past. As interest rates are expected to normalise in the coming years, highly leveraged private equity vehicles face increasing headwinds from rising costs of debt, which eat into earnings. This is confirmed by the much higher expected returns for specialised private equity vehicles in the biotech or fintech spaces (not shown here), where higher expected growth rates of the industry overall compensate for the drag from higher interest rates. In short, specialisation and selectivity will become increasingly important in the private equity space in the next ten years.

Given these expected returns from our model for liquid alternative investments, we can try to estimate the returns for illiquid direct investments by adding an appropriate illiquidity premium to the expected listed returns. To achieve this, we follow the approach that Kevin Terhaar and his colleagues have laid out.[4] This approach starts with the recognition that monthly or annual returns cannot be locked in by an investor because the investment cannot be sold at will. Because of this lock-up and the return smoothing prevalent with infrequently valued, illiquid assets, the Sharpe ratio for an illiquid asset as measured on a monthly basis overestimates the true Sharpe ratio of the investment.

However, as the measurement period for the Sharpe ratio approaches the lock-up or investment period of the investment, Sharpe ratios become more meaningful and more accurate. Adjusting the return of the liquid alternative investment to match the Sharpe ratio of the illiquid direct investment at the time horizon of the lock-up period provides an estimate of the illiquidity premium included in the illiquid direct investment. For investments with shorter lock-up periods like hedge funds, the liquidity premium tends to be lower, while investments with long lock-up periods, like venture capital show significantly higher illiquidity premia. Fig. 15 shows the liquidity premia we have used in our return forecasts, which were copied from the above-mentioned paper.

Fig 15: Illiquidity premia used in our model



Source: Terhaar et al. (2003), Fidante Partners. Forecasts are subject to estimation errors and may deviate significantly from the performance shown.

[4] Terhaar, K., R. Staub, and B. Singer (2003). "Appropriate Policy Allocation for alternative Investments." *The Journal of Portfolio Management*, Spring, pp. 101-110.

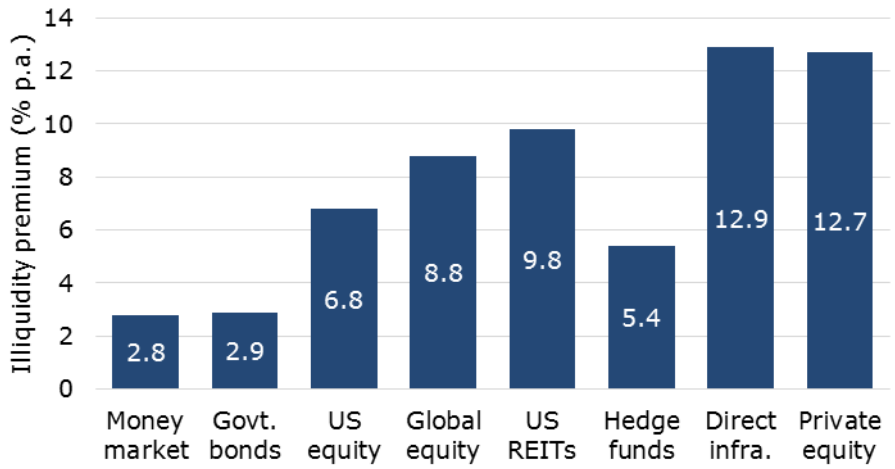
A cross-asset summary

Having gone through all the major asset categories, we can try to identify opportunities and risks in a cross-asset portfolio context. Fig. 16 shows the return assumptions in US Dollars for a selection of prominent asset classes, while Fig. 17 shows the same for a British investor thinking in Sterling. The common denominator of both figures is the split between low yielding fixed income investments and high return alternative investments.

Looking at the return in US Dollar we can clearly see how much more attractive international equities and US REITs are relative to US equities. For investors, shying away from illiquid investments, international diversification and investments in REITs seem like the best way to improve long-term expected returns.

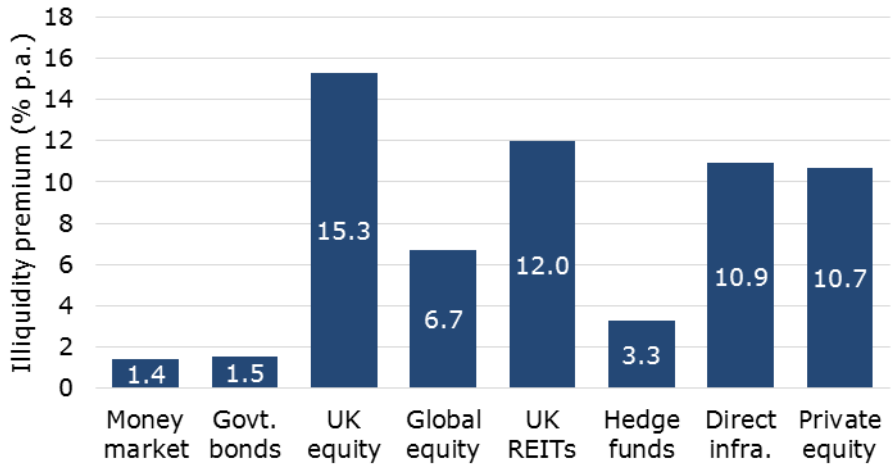
The Sterling perspective is an outlier in our model because of the very high expected returns for UK equities. If we exclude this asset class, the picture is almost the same as for a US Dollar investor. Yet, given the high expected returns for UK equities – if they can be trusted to materialise – British investors would be well advised to increase their home bias in their equity portfolios going forward.

Fig 16: Cross-asset return expectations in US Dollars



Source: Fidante Partners. Forecasts are subject to estimation errors and may deviate significantly from the performance shown.

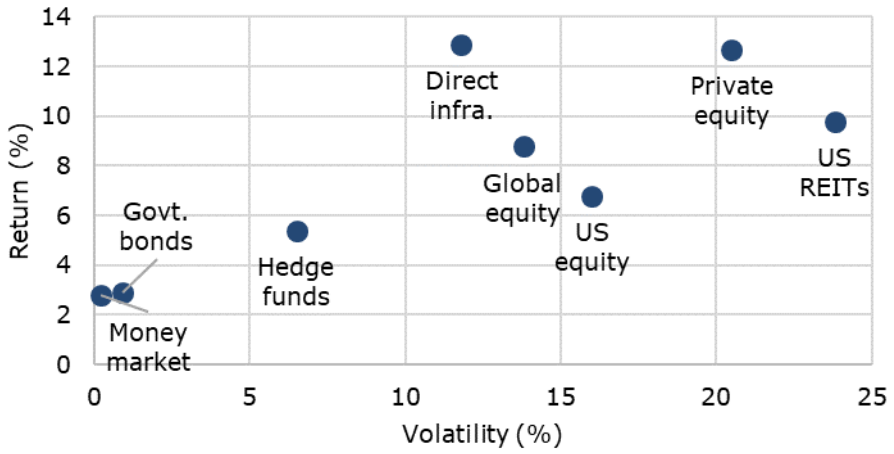
Fig 17: Cross-asset return expectations in Sterling



Source: Fidante Partners. Forecasts are subject to estimation errors and may deviate significantly from the performance shown.

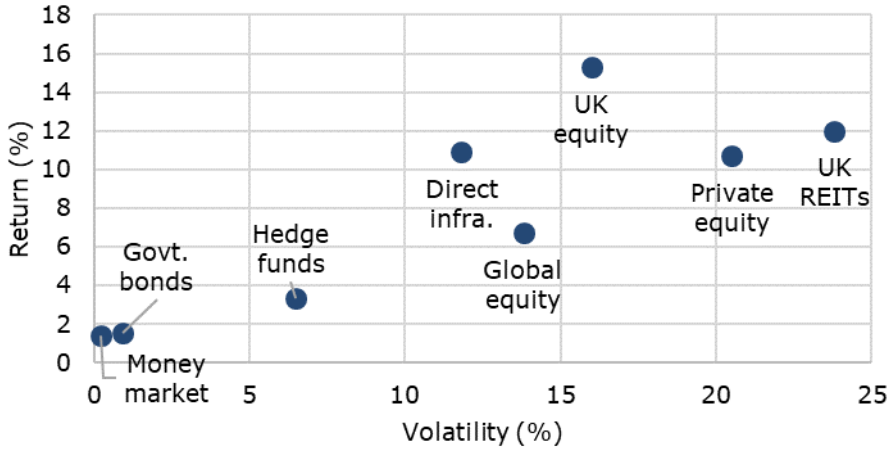
Fig. 18 and Fig. 19 put the expected returns in relation to the expected volatility of each asset class. We generally model volatility as a reversion towards 20-year historic averages. For a US Dollar investor it becomes clear that US equities are inferior to global equities and infrastructure investments, not only on a return basis but also from a risk perspective. Global equities are expected to deliver higher returns than US equities with lower volatility. Private equity and US REITs, on the other hand, have higher returns but also higher volatility. Thanks to their generally low correlation with equities, however, they are still attractive as a portfolio diversifier. Hedge funds, finally, seem attractive as diversifiers and alternatives to traditional fixed income investments. While the returns are expected to be in the 5% to 6% range annually, their low volatility means that from a risk-adjusted perspective these investments are about as attractive as global equities, but much more attractive than government, corporate and even high yield bonds (see Sharpe ratios in Appendix 1).

Fig 18: Expected risk-return trade-off in US Dollars



Source: Fidante Partners. Forecasts are subject to estimation errors and may deviate significantly from the performance shown.

Fig 19: Expected risk-return trade-off in Sterling



Source: Fidante Partners. Forecasts are subject to estimation errors and may deviate significantly from the performance shown.

Solvency II considerations

Since 2016, insurance companies in the EEA must meet the capital requirements of the Solvency II regulations. This means that riskier investments have higher requirements for the Solvency Capital Ratio (SCR), which leads to a lower risk-adjusted return on capital (RAROC) than the expected returns discussed so far. Optimising an investment portfolio for an insurance company within the Solvency II framework is beyond the scope of this report but we can at least discuss the relative attractiveness of different asset classes from a return perspective. To do this, we have calculated the expected RAROC for each asset class in the tables in Appendix 1. We define RAROC simply as the expected return, divided by one plus the SCR:

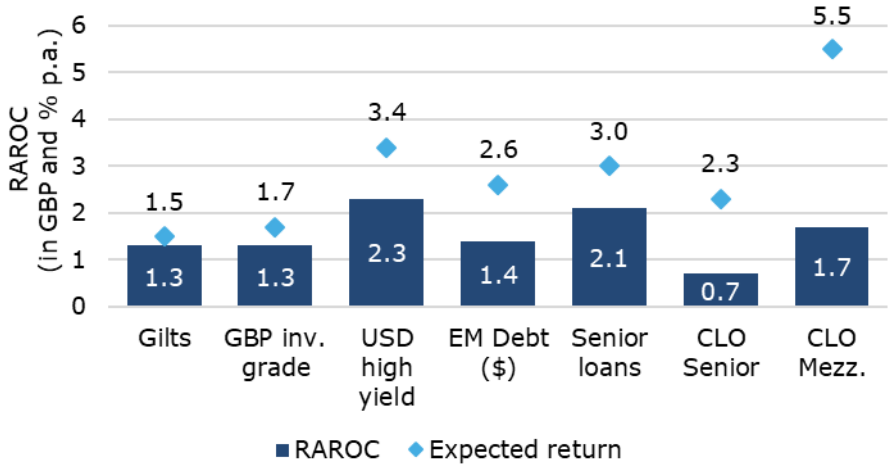
$$RAROC = \frac{r_E}{1 + SCR}$$

Where r_E is the expected return for the next ten years and SCR is the Solvency Capital Ratio at the time of writing. All of these calculations are based on an asset-only view without netting of existing liabilities. We also ignore any additional SCR requirements for investments in foreign currencies.

Fig. 20 shows the RAROC for different fixed income investments for a hypothetical UK insurance company. Given the current yield curve, the 'interest rate risk SCR' for Gilts is 11.1% for the portfolio that replicates the Bloomberg Barclays Gilt Index. The effect of this SCR is a reduction of the expected return from 1.5% to a RAROC of 1.3%. Investment grade corporate bonds in Sterling have roughly the same expected RAROC as Gilts because what little there is in expected return enhancement is eaten up by the additional 'spread risk SCR' on top of the 'interest rate risk SCR'. The situation becomes even worse for emerging market bonds where the high 'spread risk SCR' leads to an expected RAROC that is essentially equal the RAROC for Gilts. Finally, the prohibitively high 'spread SCR' for CLO and other type 2 structure securities make these asset classes completely unattractive for an insurance company, even though the expected returns for CLO are amongst the most attractive in the fixed income space.

The only interesting fixed income investments that promise a reasonable pickup in RAROC over Gilts appear to be high yield bonds and senior loans, despite the 18% to 22.5% 'spread risk SCR' that is typically levied on these high-risk bonds and loans.

Fig 20: RAROC for fixed income investments



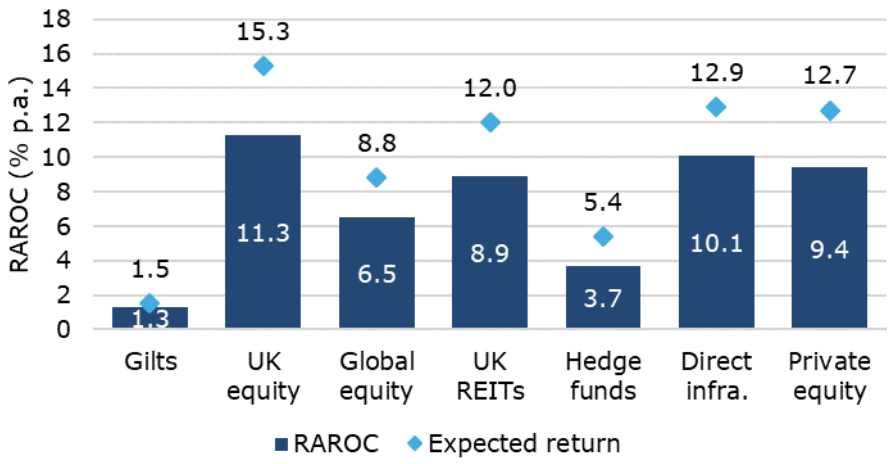
Source: Fidante Partners. Forecasts are subject to estimation errors and may deviate significantly from the performance shown.

In order to calculate the SCR for equities and alternative investments we have to calculate the symmetric adjustment, which at the time of writing is -3.7%. Given this symmetric adjustment, the 'equity risk SCR' for developed market equities, REITs, and unlevered private equity is 35.3% (39% - 3.7% symmetric adjustment), while the SCR for emerging market equities and other alternative investments is 45.3% (49% - 3.7% symmetric adjustment). The SCR for direct infrastructure equity is 26.3% (30% - 3.7% symmetric adjustment) while the SCR for listed infrastructure equity is 32.3% (36% - 3.7% symmetric adjustment). The RAROC resulting from these SCR are shown in Fig. 21.

> Infrastructure investments are amongst the most attractive investments for insurance companies today.

Given the high SCR requirements for equities the RAROC for UK and global equities decline significantly. Nevertheless, the expected RAROC for UK equities remains above 10% p.a. Thanks to the preferred treatment of infrastructure investments under Solvency II, though, infrastructure investments have essentially the same RAROC as UK equities and a significantly higher RAROC than global equities. In other words, infrastructure investments are amongst the most attractive investments for insurance companies today.

Fig 21: RAROC for different asset classes



Source: Fidante Partners. Forecasts are subject to estimation errors and may deviate significantly from the performance shown.

Appendix 1: 10-year return forecasts (2019 – 2029)

Fig 1: Currency vs. GBP

vs. GBP	Return	Volatility	Sharpe ratio in Sterling	VaR(1Y, 99.5%)	SCR	RAROC
USD	-2.0%	9.5%	-0.51	26.4%	25%	-1.6%
EUR	-1.4%	9.8%	-0.43	26.5%	25%	-1.1%
CHF	-1.9%	11.8%	-0.40	32.4%	25%	-1.5%
SEK	0.7%	10.2%	-0.20	25.5%	25%	0.6%
JPY	0.7%	14.9%	-0.14	37.7%	25%	0.6%
AUD	-2.0%	12.0%	-0.40	33.0%	25%	-1.6%

Source: Fidante Partners.
Note: VaR(1Y, 99.5%) = Value at Risk for 1 year with 99.5% probability; SCR = Solvency Capital Ratio; RAROC = Risk-Adjusted Return on Capital, defined as Return/(1+SCR); All numbers annualised. Forecasts are subject to estimation errors and may deviate significantly from the performance shown.

Fig 2: Money market

Currency	Return	In GBP	Volatility	Sharpe ratio in local currency	VaR(1Y, 99.5%)	SCR	RAROC
USD	2.8%	0.8%	0.2%	0.00	0.0%	0%	2.8%
GBP	1.4%	1.4%	0.2%	0.00	0.0%	0%	1.4%
EUR	0.7%	-0.7%	0.2%	0.00	0.0%	0%	0.6%
CHF	0.7%	-1.2%	0.2%	0.00	0.0%	0%	0.7%
SEK	0.7%	1.5%	0.3%	0.00	0.0%	0%	0.7%
JPY	0.2%	0.9%	0.1%	0.00	0.0%	0%	0.3%
AUD	2.7%	0.7%	0.3%	0.00	0.0%	0%	2.6%

Source: Fidante Partners.
Note: VaR(1Y, 99.5%) = Value at Risk for 1 year with 99.5% probability; SCR = Solvency Capital Ratio; RAROC = Risk-Adjusted Return on Capital, defined as Return/(1+SCR); All numbers annualised. Forecasts are subject to estimation errors and may deviate significantly from the performance shown.

Fig 3: Government bonds

Region	Return	In GBP	Volatility	Sharpe ratio in local currency	VaR(1Y, 99.5%)	SCR	RAROC
USA	2.9%	0.9%	4.1%	0.02	7.6%	8.8%	2.7%
UK	1.5%	1.5%	6.9%	0.01	16.3%	11.1%	1.3%
Eurozone	0.1%	-1.3%	4.3%	-0.14	11.1%	7.6%	0.0%
Switzerland	-1.3%	-3.2%	3.9%	-0.49	11.4%	11.2%	-1.4%
Sweden	0.1%	0.8%	4.4%	-0.15	11.4%	5.8%	0.0%
Japan	-0.1%	0.6%	1.8%	-0.15	4.8%	3.9%	-0.1%
Australia	2.1%	0.1%	3.4%	-0.19	6.6%	6.9%	1.9%

Source: Fidante Partners.
Note: VaR(1Y, 99.5%) = Value at Risk for 1 year with 99.5% probability; SCR = Solvency Capital Ratio; RAROC = Risk-Adjusted Return on Capital, defined as Return/(1+SCR); All numbers annualised. Forecasts are subject to estimation errors and may deviate significantly from the performance shown.

Fig 4: Credit

Asset class	Return	In GBP	Volatility	Sharpe ratio in local currency	VaR(1Y, 99.5%)	SCR	RAROC
US Inv. Grade	3.4%	1.4%	5.0%	0.13	9.4%	25.0%	2.7%
US High Yield	5.4%	3.4%	8.6%	0.30	16.7%	24.4%	4.3%
Em. Market Debt ($)	4.6%	2.6%	6.8%	0.26	12.9%	33.6%	3.4%
Em. Market Debt (LC)	5.1%	3.1%	10.3%	0.23	21.4%	33.6%	3.9%
Senior Loans[1]	5.0%	3.0%	6.2%	0.36	10.9%	22.9%	4.1%
CLO Senior[2]	4.3%	2.3%	0.8%	1.84	-2.2%	62.5%	2.7%
CLO Mezz.[3]	7.5%	5.5%	5.5%	0.85	6.7%	100.0%	3.7%
UK Inv. Grade	1.7%	1.7%	6.6%	0.05	15.4%	24.6%	1.3%
EU Inv. Grade	0.1%	-1.2%	3.5%	-0.14	8.9%	17.4%	0.1%
EU High Yield	2.3%	1.0%	9.8%	0.17	22.9%	21.9%	1.9%

Source: Fidante Partners.
Note: VaR(1Y, 99.5%) = Value at Risk for 1 year with 99.5% probability; SCR = Solvency Capital Ratio; RAROC = Risk-Adjusted Return on Capital, defined as Return/(1+SCR); All numbers annualised. Forecasts are subject to estimation errors and may deviate significantly from the performance shown.
[1]Senior loans assume spread duration of 5 years and credit rating BB.
[2]CLO Senior debt assumes spread duration of 5 years and credit rating AAA.
[3]CLO Mezzanine assumes spread duration of 5 years and credit rating BB.

Fig 5: Equity

Region	Return	In GBP	Volatility	Sharpe ratio in local currency	VaR(1Y, 99.5%)	SCR	RAROC
All countries	8.8%	6.7%	13.8%	0.43	26.8%	35.3%	6.5%
Developed ($)	8.3%	6.2%	14.0%	0.39	27.8%	35.3%	6.1%
Emerging ($)	13.0%	11.0%	16.9%	0.60	30.5%	45.3%	8.9%
USA	6.8%	4.7%	16.0%	0.25	34.5%	35.3%	5.0%
UK	15.3%	15.3%	16.1%	0.86	26.2%	35.3%	11.3%
Eurozone	10.8%	9.4%	19.3%	0.52	39.0%	35.3%	7.9%
Switzerland	3.3%	1.3%	15.3%	0.17	36.2%	35.3%	2.4%
Sweden	10.3%	11.0%	19.9%	0.48	41.0%	35.3%	7.6%
Japan	11.0%	11.7%	20.2%	0.53	41.0%	35.3%	8.1%
Australia	8.8%	6.7%	15.2%	0.40	30.4%	35.3%	6.5%
Brazil	12.3%	n.a.	30.9%	0.31	67.3%	45.3%	8.4%
Russia	5.5%	n.a.	31.5%	0.09	75.6%	45.3%	3.8%
India	16.0%	n.a.	18.0%	0.73	30.4%	45.3%	11.0%
China	13.5%	n.a.	22.1%	0.48	43.4%	45.3%	9.3%

Source: Fidante Partners.
Note: VaR(1Y, 99.5%) = Value at Risk for 1 year with 99.5% probability; SCR = Solvency Capital Ratio; RAROC = Risk-Adjusted Return on Capital, defined as Return/(1+SCR); All numbers annualised. Forecasts are subject to estimation errors and may deviate significantly from the performance shown.

Fig 6: Alternatives

Region	Return	In GBP	Volatility	Sharpe ratio in local currency	VaR(1Y, 99.5%)	SCR	RAROC
REIT USA	9.8%	7.7%	23.8%	0.29	51.6%	35.3%	7.2%
REIT UK	12.0%	12.0%	20.3%	0.52	40.3%	35.3%	8.9%
REIT Eurozone	14.5%	13.1%	19.5%	0.71	35.7%	35.3%	10.7%
REIT Australia	12.3%	10.2%	14.6%	0.66	25.4%	35.3%	9.1%
Listed infrastructure	10.3%	8.2%	13.9%	0.54	25.6%	32.6%	7.7%
Infrastructure equity	12.9%	10.9%	11.8%	0.86	17.4%	27.1%	10.1%
Infrastructure debt[1]	5.0%	3.0%	5.5%	0.41	9.1%	13.2%	4.4%
Listed renewable energy	16.0%	14.0%	24.0%	0.55	45.8%	32.6%	12.1%
Direct renewable energy	18.7%	16.6%	12.5%	1.27	13.5%	27.1%	14.7%
Commodity stocks	11.0%	9.0%	18.6%	0.44	36.9%	35.3%	8.1%
Gold	2.8%	0.8%	19.0%	0.00	46.2%	45.3%	1.9%
Listed timber	8.5%	6.5%	18.3%	0.31	38.6%	35.3%	6.3%
Hedge funds	5.4%	3.3%	6.5%	0.40	11.4%	45.3%	3.7%
Listed private equity	10.7%	8.6%	17.2%	0.46	33.6%	35.3%	7.9%
Venture capital	12.5%	10.5%	26.0%	0.37	54.5%	35.3%	9.2%
Direct private equity	12.7%	10.7%	20.5%	0.48	40.1%	35.3%	9.4%

Source: Fidante Partners.
Note: VaR(1Y, 99.5%) = Value at Risk for 1 year with 99.5% probability; SCR = Solvency Capital Ratio; RAROC = Risk-Adjusted Return on Capital, defined as Return/(1+SCR); All numbers annualised. Forecasts are subject to estimation errors and may deviate significantly from the performance shown.
[1]Infrastructure debt assumes modified duration of 6 years and average rating AA.

Appendix 2: Market valuations as at 30 September 2018

Developed Markets	Current CAPE	Average last 20 years	Current PB-ratio	Average last 20 years
Australia	32.4	22.5	2.00	2.17
Austria	3.5	16.8	1.32	1.37
Belgium	29.2	17.7	1.98	1.93
Canada	44.6	27.9	1.83	2.12
Denmark	87.7	36.1	3.78	2.81
Eurozone	32.5	21.7	1.67	1.88
Finland	13.8	26.2	2.50	3.03
France	40.2	23.8	1.74	1.91
Germany	34.2	23.0	1.71	1.76
Hong Kong	42.0	20.9	1.22	1.41
Ireland	6.8	12.6	1.65	2.12
Italy	6.7	18.6	1.15	1.60
Japan	44.2	35.3	1.41	1.49
Netherlands	39.6	19.1	2.14	2.18
New Zealand	8.9	15.3	3.01	1.97
Singapore	28.9	18.0	1.28	1.59
Spain	13.1	15.3	1.31	1.86
Sweden	47.0	24.7	2.23	2.33
Switzerland	35.6	24.8	2.52	2.68
UK	17.9	17.4	1.80	2.14
USA	29.8	26.3	3.52	2.93
Developed Markets	32.0	25.8	2.48	2.33

Source: Fidante Partners.

Emerging Markets	Current CAPE	Average last 20 years	Current PB-ratio	Average last 20 years
Brazil	24.6	10.3	1.75	1.63
Chile	35.8	21.9	1.91	1.85
China	8.2	19.8	1.66	1.88
Colombia	35.0	34.7	1.41	1.42
Greece	2.3	13.3	1.87	2.14
Hungary	32.0	19.6	1.39	1.76
India	37.9	24.6	3.02	3.01
Indonesia	52.5	23.8	2.71	3.08
Korea	31.2	19.0	1.00	1.17
Malaysia	25.3	20.1	1.80	1.90
Mexico	45.3	23.4	2.52	2.49
Peru	75.5	32.0	2.51	2.45
Philippines	39.3	20.6	2.11	2.18
Poland	29.6	18.3	1.41	1.60
Russia	14.8	13.1	0.86	1.02
South Africa	31.9	19.0	2.21	2.35
Thailand	30.0	13.8	2.15	2.11
Turkey	25.6	21.4	1.09	1.85
Emerging Markets	23.7	16.7	1.59	1.65

Source: Fidante Partners.

Themes and alternative investments	Current PB-ratio	Average last 20 years
Global equity	2.48	1.98
Diversified private equity	3.09	1.93
Biotechnology	5.87	5.27
Big Data	5.49	5.32
AI and robotics	3.12	3.27
Global property	1.75	1.72
US property	2.44	2.38
UK property	0.82	0.95
Europe property	0.86	1.05
Australia property	0.91	1.01
Listed infrastructure	1.93	1.78
Renewable energy	1.22	1.29
Solar energy	0.80	1.25
Wind energy	1.59	1.19
Water	2.69	2.27
Natural resources	1.57	1.49
Timber and forestry	1.88	1.58

Source: Fidante Partners.

RESEARCH

Joachim Klement
+44 20 7832 0956
jklement@fidante.com

Martin McCubbin
+44 20 7832 0952
mmccubbin@fidante.com

Aliy Akbarov
+44 20 7832 0957
aakbarov@fidante.com

MARKET MAKING

STX 79411 79412

Mark Naughton
+44 20 7832 0991
mnaughton@fidante.com

Anthony Harmer
+44 20 7832 0995
aharmer@fidante.com

UK SALES

Daniel Balabanoff
+44 20 7832 0955
dbalabanoff@fidante.com

Max Bickford
+44 20 7832 0934
mbickford@fidante.com

Hugh Ferrand
+44 20 7832 0935
hferrand@fidante.com

Patrick Valentine
+44 20 7832 0932
pvalentine@fidante.com

Justin Zawoda-Martin
+44 20 7832 0931
jzawodamartin@fidante.com

INTERNATIONAL SALES

Christian Andersson
+46 8 1215 1360
candersson@fidante.com

Ian Brenninkmeijer
+46 8 1215 1361
ibrenninkmeijer@fidante.com

Trevor Barnett
+1 212 897 2807
tbarnett@fidante-us.com

Adam Randall
+1 212 897 2807
arandall@fidante-us.com

Yves van Langenhove
AAMYS* (Fidante Partners)
+34 468 29 08 04
yvanlangenhove@fidante.com

PRODUCT DEVELOPMENT

Tom Skinner
+44 20 7832 0953
tskinner@fidante.com

CORPORATE FINANCE

John Armstrong-Denby
+44 20 7832 0982
jdenby@fidante.com

Nick Donovan
+44 20 7832 0981
ndonovan@fidante.com

Will Talkington
+44 20 7832 0936
wtalkington@fidante.com

Important Information

This is a marketing communication and is not, and should not, be considered as independent investment research. It is issued by Fidante Partners Europe Limited ("Fidante Partners") which is authorised and regulated by the Financial Conduct Authority ("FCA"). Fidante Partners Europe Limited trades as "Fidante Partners" and "Fidante Capital". Fidante Partners Europe Limited is a wholly owned subsidiary of Challenger Limited, a company listed on the Australian Securities Exchange Limited.

This marketing communication is for persons who are Eligible Counterparties or Professional Clients (for the purposes of the FCA rules) only and it is not available to Retail Clients. It is being distributed (a) in the United Kingdom to, and is directed only at, persons who are (i) investment professionals as defined in Article 19 of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the "Promotion Order") or (ii) are persons to whom this marketing communication may otherwise lawfully be issued or passed on or (b) outside the United Kingdom to, and is directed only at, persons to whom this marketing communication may be lawfully issued or issued without compliance with any filing, registration, approval or other requirement in the relevant jurisdiction, and in each such case without the inclusion of any further warnings or statements as required by the Promotion Order, or other applicable law or regulation, which are not included in this marketing communication (all such persons together being referred to as "relevant persons"). Neither this marketing communication nor any of its contents may be received by, acted on or relied on by persons who are not relevant persons.

No part of this marketing communication may be published, distributed, extracted, re-utilised or reproduced and any attempt to do so may be restricted or prohibited by law. Recipients are required to inform themselves of, and comply with, all such restrictions or prohibitions and none of Fidante Partners or any other person accepts liability to any person in relation thereto.

Fidante Partners does not produce independent investment research within the meaning of the FCA Handbook of Rules and Guidance. Accordingly, this marketing communication is non-independent research within the meaning of those rules, which means it is a marketing communication under the Markets in Financial Instruments Directive ("MiFID") and it has not been prepared in accordance with legal requirements designed to promote the independence of investment research, and it is not subject to any prohibition on dealing ahead of the dissemination of investment research. However, Fidante Partners has policies, internal organisational and administration arrangements and information barriers to prevent or manage the conflicts which may arise in the production of non-independent research, including preventing dealing ahead. This includes physical and electronic information barriers procedures and the operation of a cultural Chinese Wall. For further information, please view the following policies: Conflicts of Interest, Chinese Walls Policy.

Fidante Partners acts as a market maker, corporate broker and, from time to time, bookrunner to companies in the closed-end listed investment company sector. A list of all companies in relation to which Fidante Partners acts as market maker and/or corporate broker and/or bookrunner (and the relevant dates of any closing of any such capital raise) can be viewed here: Market Making Stocks (of which Fidante Partners acts as market maker and accordingly Fidante Partners may own net long or short positions exceeding 0.5% of the total issued share capital), Corporate Appointments. The Market Making Stocks will indicate any other equity interests held by Fidante Partners or a member of the Challenger Group.

Fidante Partners or a member of the Challenger Limited group may have an economic interest (for example, minority equity interest or fee entitlement) in investment managers of the funds of which it provides services (such as corporate finance, listing sponsorship, market maker, corporate broker, bookrunner and administrative and support services). The Corporate Appointments also indicates whether Fidante Partners or any member of the Challenger Limited group holds more than 5% of the total issued share capital of the issuer. Fidante Partners is remunerated by fees for services provided and may be entitled to a share of profits from these investment managers and third parties. There is no direct link between the remuneration of individuals at Fidante Partners and the recommendations or transactions tied to services provided by Fidante Partners. Fidante Partners does not produce buy, sell or hold recommendations with respect to specific securities. Unless otherwise stated, this communication will not be regularly updated.

Please click here for the Fidante Partners research policy.

This marketing communication does not constitute a personal recommendation or take into account the particular investment objectives, financial situation or particular needs of any specific recipient. It is not intended to provide the sole basis for any evaluation of an investment decision. Your attention is drawn to the date of issue of this marketing communication and of the opinions expressed herein. Before acting on any advice or recommendations in this marketing communication, recipients should consider whether it is suitable for their particular circumstances and, if necessary seek professional advice, including tax advice. Recipients of this marketing communication should note that: All investments are subject to risk; the value of shares may go down as well as up; you may not get back the full amount that you have invested; past performance is not a guarantee of, and cannot be relied on as a guide to, future performance; fluctuations in exchange rates could have adverse effects on

the value or price of, or income derived from, certain investments.

This marketing communication is for informational purposes only and does not constitute, and should not be viewed as, an offer, invitation or solicitation in respect of securities or related other financial instruments nor shall it be construed as a recommendation for Fidante Partners to effect any transaction to buy or sell securities or related financial instruments on behalf of any recipient nor shall it, or the fact of its distribution, form the basis of or be relied upon in connection with, any contract or commitment in relation to such action. The securities that may be described in this marketing communication may not be eligible for sale in all jurisdictions or to certain categories of investors.

This marketing communication is based upon information which Fidante Partners considers reliable, but such information has not been independently verified and no representation is made that it is, or will continue to be accurate or complete and nor should it be relied on as such. This marketing communication is not guaranteed to be a complete statement or summary of any securities, markets, documents or developments referred to in this marketing communication.

Any statements or opinions expressed in this marketing communication are subject to change without notice. Neither Fidante Partners, any member of the Challenger Limited group nor any of their directors, officers, employees or agents shall have any liability (including negligence), however arising, for any error, inaccuracy or incompleteness of fact or opinion, or lack of care, in this communication's preparation or publication; provided that this shall not exclude liability which Fidante Partners has to a customer under the Financial Services & Markets Act 2000 or under the Rules of the Financial Conduct Authority.

This marketing communication contains certain forward-looking statements, beliefs or opinions. These statements concern future circumstances and results and other statements that are not historical facts, sometimes identified by the words "believes", "expects", "predicts", "intends", "projects", "plans", "estimates", "aims", "foresees", "anticipates", "targets", "may", "will" and similar expressions. Such statements reflect current views with respect to future events and are subject to risks and uncertainties because they relate to events and depend on circumstances that will occur in the future. These forward-looking statements are based on current plans, estimates, projections and expectations. These statements are based on certain assumptions that, although reasonable at this time, may prove to be erroneous. No statement in this marketing communication is intended to be a profit forecast. No representations or warranties, express or implied, are given as to the achievement or reasonableness of and no reliance should be placed on, such statements, including (but not limited to) any projections, estimates, forecasts or targets contained herein. Fidante Partners does not undertake to provide any additional information, update or keep current information contained in this marketing communication, or to remedy any omissions in or from this marketing communication. There are a number of factors that could cause actual results, developments, financial targets and strategic objectives to differ materially from those expressed or implied by statements in this marketing communication. Fidante Partners, nor any other person intends, and no person assumes any obligations, to update information or statements set forth in this marketing communication. You should not place reliance on forward-looking statements which speak only as at the date of this document.

Where references to external resources such as internet websites are provided these are for reference purposes, and the external resources are not intended to be included as part of this publication; Fidante Partners plc has not checked and is not responsible for any external content, and makes no representation as to its reliability or accuracy.

Any dispute, action or other proceeding concerning this marketing communication shall be adjudicated within the exclusive jurisdiction of the courts of England. All material contained in this marketing communication (including in this disclaimer) shall be governed by and construed in accordance with the laws of England and Wales.

Fidante Partners Europe Limited

Authorised and Regulated by the Financial Conduct Authority

Fidante Partners Europe Limited trades as "Fidante Partners" and "Fidante Capital".

Registered Office: 1 Tudor Street, London EC4Y 0AH.
Registered in England and Wales No. 4040660.


FIDANTE
PARTNERS