

Panorama

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Investing in 2021 | UBS Asset Management



Reframing the future

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back to
normal

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yield-thirsty
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Artificial
Intelligence
opportunities

In this edition of Panorama, our senior asset class and allocation experts assess the potential challenges and opportunities investors face in what continues to be a low rate environment.

The following pages offer distinct viewpoints and investment insights across our global capabilities, to help meet your investment challenges.

For additional content and previous editions of Panorama, including videos and additional in-depth investment insight, visit ubs.com/panorama or scan the below QR code.



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Barry Gill
Head of Investments

Change? Or more of the same...

As 2020 draws to a close, and we turn our focus to the upcoming investing year, it is tempting to be biased by recent experience and assume that shock and volatility are here to stay; this is part of the human condition.

But when one parses this year it actually becomes clear that the virus and the associated economic lockdowns did

Many companies are on their knees, but some parts of the economy have actually never had it better, leading to incredible dispersion in equity returns and credit spreads.

more to entrench existing trends than to invert them. It proved an accelerant on internet disruption, which served to exacerbate well-entrenched service industry disinflation. And this in turn heavily influenced global bond yields which are currently plumbing previously unimaginable lows.

While we have clearly experienced a profound recession and an accompanying bear market, from an investor's perspective it has felt very different to prior economic downturns in that the impacts have been so lopsided. Many companies are on their knees, but some parts of the economy have actually never had it better, leading to incredible dispersion in equity returns and credit spreads. And the rebounding equity market should remind us all that stock valuation is as much about the discount rate as it is about earnings.

But with world equity indices back within reach of record highs and government bond yields below 1% in every major economy other than China, the challenge to outrun liability growth is greater than ever for many of our clients, particularly those who have annual obligations. How to generate income in a world bereft of yield is the primary focus of this edition of Panorama: Investing in 2021, and we lean on several of our internal experts

We shed some light on another probable outcome of the current low yield environment, that the traditional diversification benefits across the asset classes will likely break down.

to look at this challenge from a variety of perspectives and to consider the opportunities across asset classes.

Our Fixed Income portfolio managers encourage our clients to seek yield by adding exposure to Asia and China in particular, while our Quant team points to high dividend opportunities in the equity markets. The CIO of O'Connor discusses why the timing is right to allocate into multi-strategy hedge funds, particularly as an income substitute.

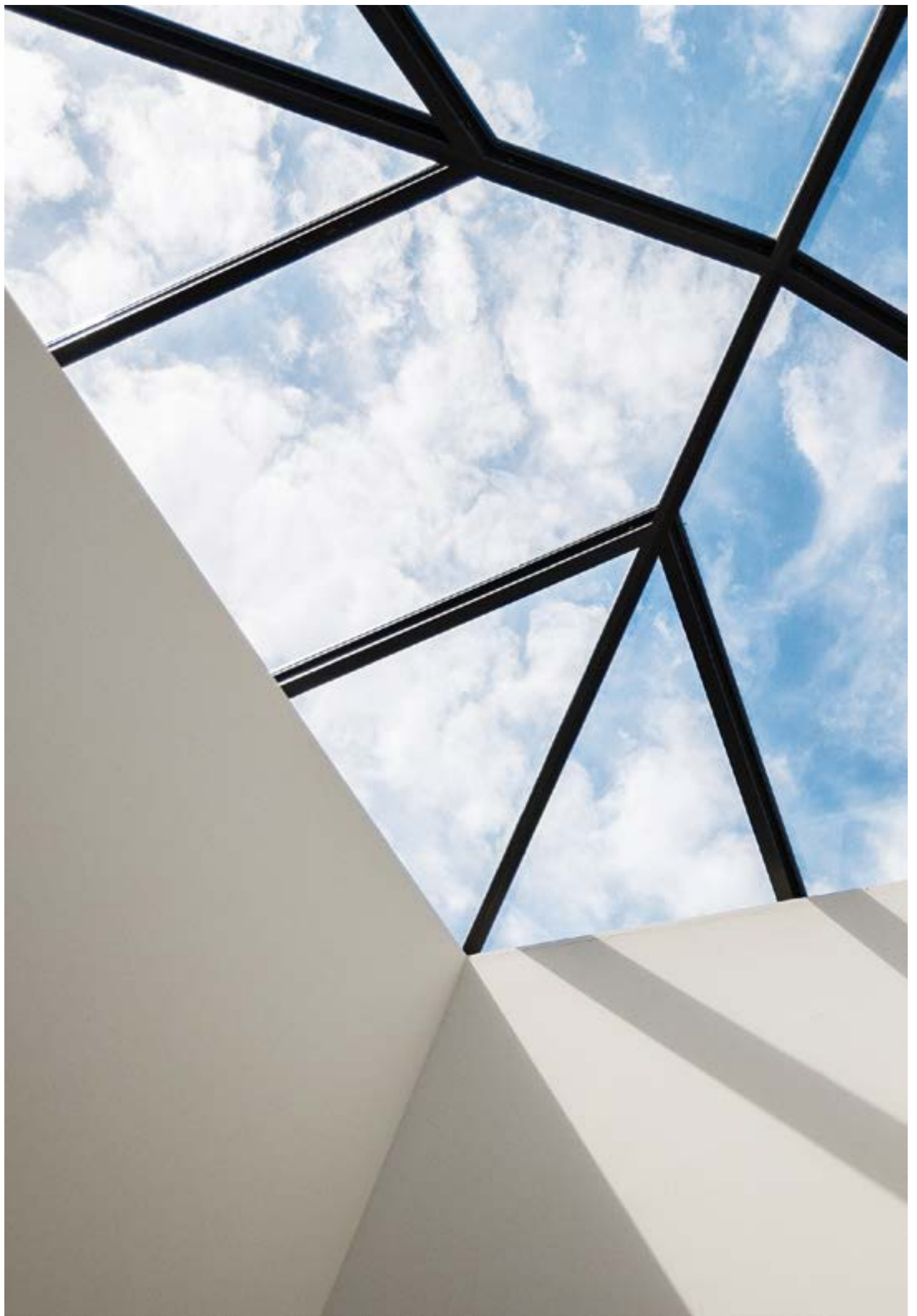
We shed some light on another probable outcome of the current low yield environment, that the traditional diversification benefits across the asset classes will likely break down, with views from our Multi Asset team. They make the case for seeking to improve on

that dynamic by allocating into private markets, something that is backed up by our Real Estate & Private Markets team as they explore the opportunities available from infrastructure investing. We believe that infrastructure should be a prime beneficiary of the economic stimulus packages and low interest rate environment spurred by the pandemic.

Elsewhere, we explore the potential ramifications of the US election, the outlook for small caps, and the limitations of artificial intelligence for fundamental analysis. And we round it all off with an examination of the sweeping EU regulation on sustainability-related disclosures.

I hope you find our year-end update both informative and provocative. Please don't hesitate to contact your UBS Asset Management partner should you seek further insight.

We look forward to our continued partnership with clients throughout the next year.



The road back to normal

2021 investment trends



Evan Brown
Head of Macro
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Strategy



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Head of Investment
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Strategist

2020 was the year of the pandemic, instant recession, and US election drama, while we think 2021 is poised to be the year of vaccines and a more durable, comprehensive economic reopening.

With the election behind us and a potential response to the pandemic in sight, we expect the nascent economic expansion to gain traction amid continued policy support and increased visibility towards the development of an effective and broadly available vaccine, which should also foster a decline from the extreme levels of market volatility that prevailed in 2020. While these developments will likely be positive for risk assets, the medium-term outlook for generating reliable, meaningful yield has never been more challenging.

The challenge for income generation

We believe that the overall macro environment is highly supportive of risk assets, and we have a bias towards procyclical relative value positions. The

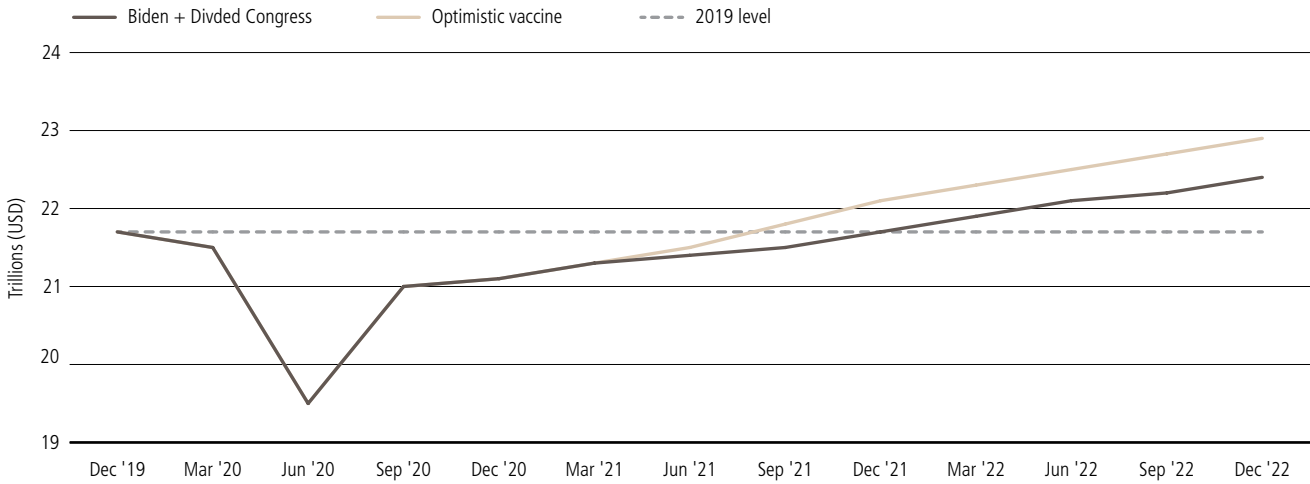
economic recovery is poised to continue and become more self-sustaining as medical innovations allow for the normalization of private-sector activity.

Real interest rates are negative across advanced economies, and are likely to stay that way through 2021 and beyond. We believe a less aggressive outlook for US fiscal stimulus limits the prospect of a sudden, significant rise in Treasury yields that would have spillovers across international markets. Investors will have to work harder to generate yield.

The appeal of opportunities in multi-asset hedge funds and alternative assets could increase in this low-yield-for-longer environment. Within the publicly traded universe, the progression of the

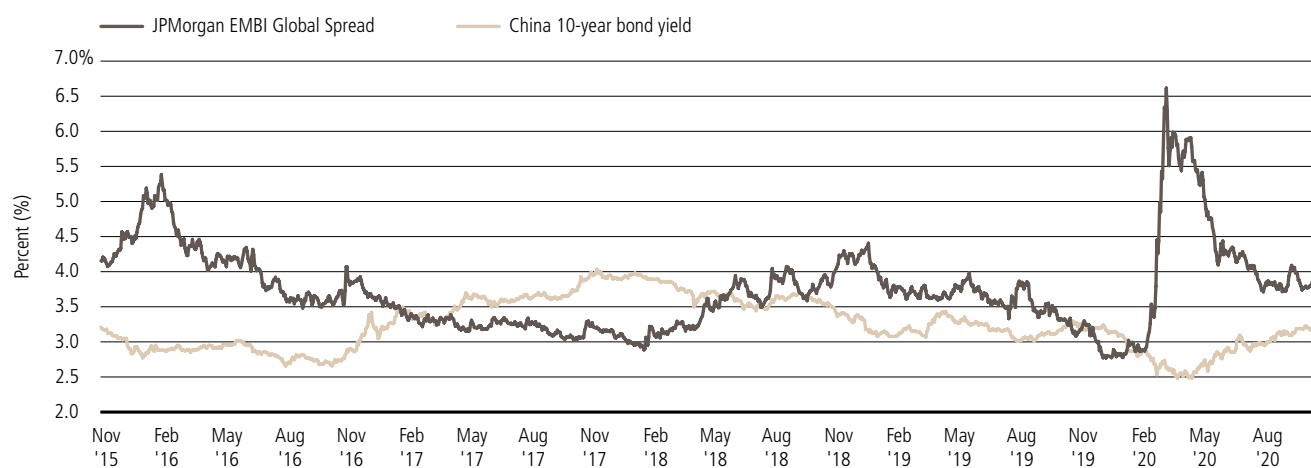


Exhibit 1: Optimistic vaccine scenario provides upside risk to divided government growth outlook



Source: UBS Asset Management, UBS Investment Bank, Macrobond, BEA. Data as of 10 November 2020. Gray line represents 2019 US Gross Domestic Product as baseline.

Exhibit 2: Attractive yield pick-up available in Chinese bonds, US dollar-denominated EM debt



Source: UBS Asset Management, Bloomberg. Data as of 10 November 2020.

global economic expansion coupled with the low level of yields on developed-market sovereign debt should likely push investors up the risk spectrum. In our view, this makes emerging market dollar-denominated debt, including Chinese government bonds, particularly compelling.

US election impact

The results of the US election provide increased clarity on the economic outlook. President-elect Joe Biden is likely to take office with a Republican Senate. This combination should provide the US economy with adequate additional fiscal support, though not as much as would have been the case in the event of a united Democrat government. In addition, the likelihood

of higher taxes has lessened considerably, removing one potential headwind to US earnings growth.

In our view, this election outcome will help foster sustained US dollar weakness, with the protectionism premium embedded in the world’s reserve currency ebbing in light of this change in leadership. We expect the Treasury curve to steepen over time as the expansion makes further headway.

But the potential for ongoing, substantial fiscal stimulus stateside has diminished materially, reducing the odds of a disorderly rise in bond yields that could foster dollar strength. Linked to this outlook for a softer US dollar, the across-the-board outperformance of

emerging market assets is our highest conviction view, which is bolstered by the election results.

The virus and vaccines

COVID-19 remains a persistent risk that threatens to delay the timing and magnitude of the economic recovery, particularly in the near term. However, we foresee the impact of additional waves of the pandemic on activity to play out in the form of mini-cycles.

More adaptive public behavior, better health practices, and less draconian restrictions on activity may mitigate how much rising case counts weigh on the economic mobility. We think that the success of these measures in curtailing the spread of the virus will avoid the type of prolonged retreats in activity

The broad-based economic recovery is conducive to the outperformance of emerging markets. So too is the relative status of China's economic comeback, which is in a more advanced phase than any other nation.

seen earlier this year and allow the normalization process to resume more expediently.

We expect regulators to potentially approve three vaccines for COVID-19 before year-end. Recently we have seen highly encouraging phase three trial results from these prominent candidates. This increases our conviction in economic normalization occurring over the course of 2021, and reduces left tail scenarios in which a medical breakthrough remains elusive for an extended period.

By mid-2021, we expect a material share of the population across advanced economies to be inoculated. For most emerging markets, this process is likely to take longer. The development of

therapeutics and advances in testing constitute upside risks that could allow for a swifter, broader normalization of activity. The myriad logistical issues that could delay the distribution and administration phases of vaccination serve as downside risks.

Even as this process reaches its advanced stages, we would still expect high-contact portions of the services industry, including tourism, to operate well below pre-pandemic levels of capacity. This is why targeted fiscal support will still be needed to cushion the ongoing income stress faced by afflicted households and businesses during a drawn-out adjustment process.

We prefer US small caps to their large cap counterparts, which are more sensitive to the unfolding domestic recovery buoyed by progress towards a vaccine that facilitates a durable reopening. Third quarter earnings results showed that expectations run high for stay-at-home beneficiaries in the equity market, and we believe that the degree of improvement in operating performance in 2020 is unlikely to be matched next year.

Europe's sounder foundation

Europe is in the midst of a seasonal wave of COVID-19 that has caused politicians to reimpose mobility restrictions across many nations. This disruption to the near-term growth outlook is well understood and largely priced in, in our view.

We prefer non-US developed market equities, which have more cyclical exposure.

Going forward, we believe Ireland is a good leading indicator of the improvements in the virus outlook we expect across the continent. New case growth is declining, the lagged effect of government restrictions on activity that were enacted before other European countries. This pattern is indicative of the COVID-19 mini-cycle thesis outlined previously.

We prefer non-US developed market equities, which have more cyclical exposure. This view is in part informed by the sea change in European counter-cyclical policy relative to a decade ago. The common shock spurred higher cohesion between European Union member states, reducing the prospect

of premature fiscal and monetary tightening that suppressed the recovery from the global financial crisis, and in turn, political tail risks.

While a step down from 2020, European budget deficits are slated to be larger in 2021 than at any time in the post-2009 recovery.

Emerging strength

The broad-based economic recovery is conducive to the outperformance of emerging markets. So too is the relative status of China's economic comeback, which is in a more advanced phase than any other nation. The resilience in the world's engine of production and strong credit impulse may continue to bolster global activity, as long as growth in total social financing, imports, and inventories does not moderate too briskly. In our view, this positive influence is a

boon for the global market outlook in general, and for emerging markets as well as other procyclical assets in particular.

Beyond the aforementioned attractiveness of dollar-denominated debt in light of current spreads, we also favor emerging market currencies, which have outsized catch-up potential relative to other procyclical trades.



Overall signal = Negative Positive

Exhibit 3: Traditional asset classes, and currencies—as of 6 November 2020¹

	Overall signal	← Unattractive	Neutral	Attractive →
Equities		UK Switzerland	US Australia	Japan Eurozone China EM ex China
Fixed Income		EZ (Core) UK Switzerland Japan	US EZ (Non-core) EMD LC	US Inflation-linked Australia China sovereign
Credit			US Inv Grade EU Inv Grade EU High Yield US High Yield	EMD USD Asia credit
Currencies		USD EM Asia ex-China CAD AUD	GBP CHF CEEMA CNY	EUR Latin America Nordic JPY

¹ Source: UBS Asset Management's Investment Solutions Macro Asset Allocation Strategy team as at 6 November 2020. Views are provided on the basis of a 3–12 month investment horizon, are not necessarily reflective of actual portfolio positioning and are subject to change.



Thoughts
from our key
investment experts



How should investors prepare for uncertain markets ahead?

In an era of lower-for-longer, our portfolio managers share their insights on what 2021 could bring from an income/yield perspective.

Dividends for yield-thirsty investors

The search for **reliable sources of income**



Patrick Zimmermann
Head of Quantitative Investments



Urs Raebisamen
Head of Investment Specialists, Systematic & Index Investments

For income-seekers, life has become an investment challenge. As yields on decent quality bonds languish, can defensive dividend strategies offer attractive alternative income sources?

In a world of low interest rates and years of asset purchases by central banks that have led to ultra-low bond yields, many yield hunters have turned their attention to equities where dividend yields have remained broadly in line with their historical norms of 2% to 4%.

While equities offer the potential to participate in the market's upside, there is also the risk of capital loss larger than what a typical high-grade fixed income investor might be willing to accept.

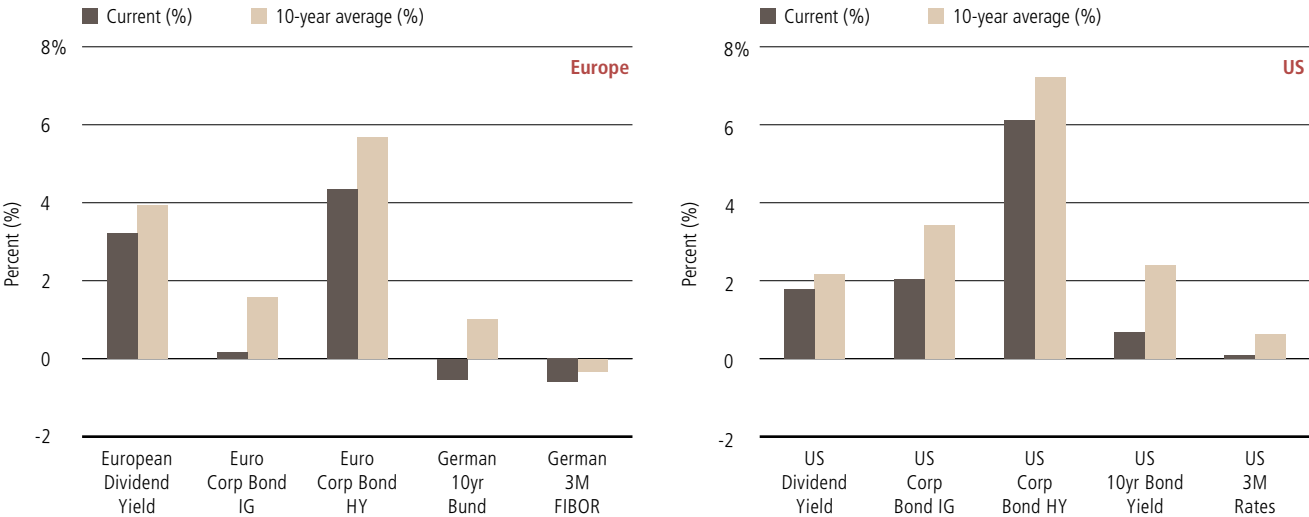
Nonetheless, there are three potential sources of equity income: dividends, share buybacks and call overlay strategies, and we assess their place in equity income portfolios.

The income investor's toolkit

In the years following the Global Financial Crisis (GFC), many companies deleveraged and bolstered their balance sheets by building up significant cash reserves. The COVID-19 crisis led some of those companies, most prominently a number of UK-listed banks, to cut or

Many yield hunters have turned their attention to equities where dividend yields have remained broadly in line with their historical norms of 2% to 4%.

Exhibit 4: Equity dividend yield in line with historical average in Europe and US



Source: FactSet, as at 30 September 2020.



even cancel their dividends. Many firms, however, have kept their dividends intact, and yields held up well when markets fell. As markets recovered strongly, yields have come down somewhat.

To identify stocks with sustainable dividends, we favor a combination of high dividend and high quality stock selection criteria; the latter of which can be measured by looking at metrics such as high profitability, low financial leverage, strong corporate governance and human capital management, stock price stability and size, amongst others. We believe this combination of dividend and quality criteria can lead to better results over the long term.

Many firms have kept their dividends intact, and yields held up well when markets fell.

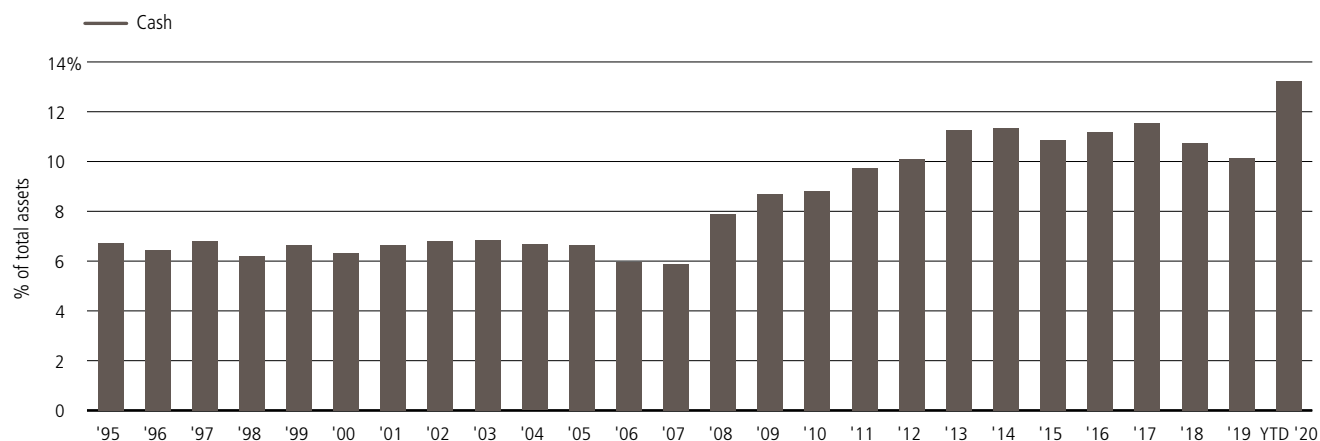
Another means by which equities have delivered meaningful income returns in recent years has been through the use of share buybacks. By buying back shares, companies reduce the number of shares in circulation, distributing profits over a smaller pool of shares. This is reflected in higher earnings per share (EPS).

Unless there has been a dramatic (and coincidental) change in fundamentals, if the EPS rises, so should the share price – if the share price doesn't rise,

the P/E will fall. To preserve the company's intrinsic valuation, the share price should rise to keep the P/E broadly in line with its pre-buyback level. This effect is otherwise known as 'the buyback yield' – the long-term price increase due to share buybacks.

Buyback volumes in the US peaked before the COVID-19 equity market correction and have since dropped significantly. While earnings have also fallen, US companies have on average been cautious and many have raised capital in the bond market to enhance their liquidity position. With the economy as well as earnings recovering, cumulative cash balances are approaching peak levels again and we believe that this should allow companies to resume buyback programs.

Exhibit 5: US companies' cash balance over time



Source: UBS US Equity & Derivatives Strategy/Bloomberg, as of 30 September 2020.

Income from option overlays

Covered call overwriting strategies systematically sell short-dated call options on portfolio holdings. The call option seller earns an option premium, which itself adds an income stream to the portfolio, but with the added benefit that by selling call options on a stock, the portfolio's market sensitivity, and therefore downside risk, contributes to a smoother return profile. In exchange for the income and the added layer of downside cushion, the call overlay will reduce the portfolio's upside participation.

The call option premium is a function of the portfolio's implied volatility. The higher the level of implied volatility, the higher the premium that can be earned from selling optionality. Given that levels of volatility are generally higher during

times of market distress, selling call options usually provides greater levels of income during turbulent bear markets.

During the COVID-19 market correction, option premia rose significantly, allowing us to achieve roughly double the normal income and at the same time setting the strike-levels much higher whereby upside participation in a rebound increases correspondingly.

Therefore, we believe equities offer yield hunters a multi-faceted investment approach – dividends, share buybacks and call overlay strategies – to generate income. Given that the three sources are complementary with respect to their behavior in different parts of the cycle, a combination of all three approaches could prove an effective means of navigating 2021 to achieve the income investors are seeking.

We believe equities offer yield hunters a multi-faceted investment approach – dividends, share buybacks and call overlay strategies – to generate income.

Are small caps taking big strides?

Resilience during periods of economic stress



Viara Thompson
Research Analyst,
Pan-European Small
& Mid Cap Equities



David W. Sullivan
Investment Analyst,
US Small Cap
Growth Equities



Kevin Barker
Head of Equity
Specialists

Small-cap stocks have historically led the market coming out of a recession, so can investors expect bigger opportunities from smaller companies in the year ahead?

Small cap stocks underperformed large cap stocks in the turbulent period around COVID-19.¹ This reaction is in line with the last global market correction in 2008 when small caps dropped further than large caps and rebounded more strongly in the recovery (Exhibit 6). Over the long term smaller companies have provided better returns and over a 20-year period the MSCI All Country Small Cap index outperformed the MSCI All Country World index by 2.3%² per annum.

As markets and economies enter recovery post COVID-19, we believe it is an opportune time for investors to consider increasing their commitment to small cap strategies.³

Why invest in small caps?

According to Bloomberg, there are on average four sell side analysts per company covering small caps vs. an average 16 analysts per large cap. This could provide well-resourced portfolio management teams with a substantial information advantage and enable them to identify attractive investment opportunities.

Small cap indices are less concentrated than large cap indices, with the largest 10 stocks in the MSCI ACWI Small Cap Index representing only 2.0% of the index's total market cap, while the top 10 companies in the MSCI ACWI Index

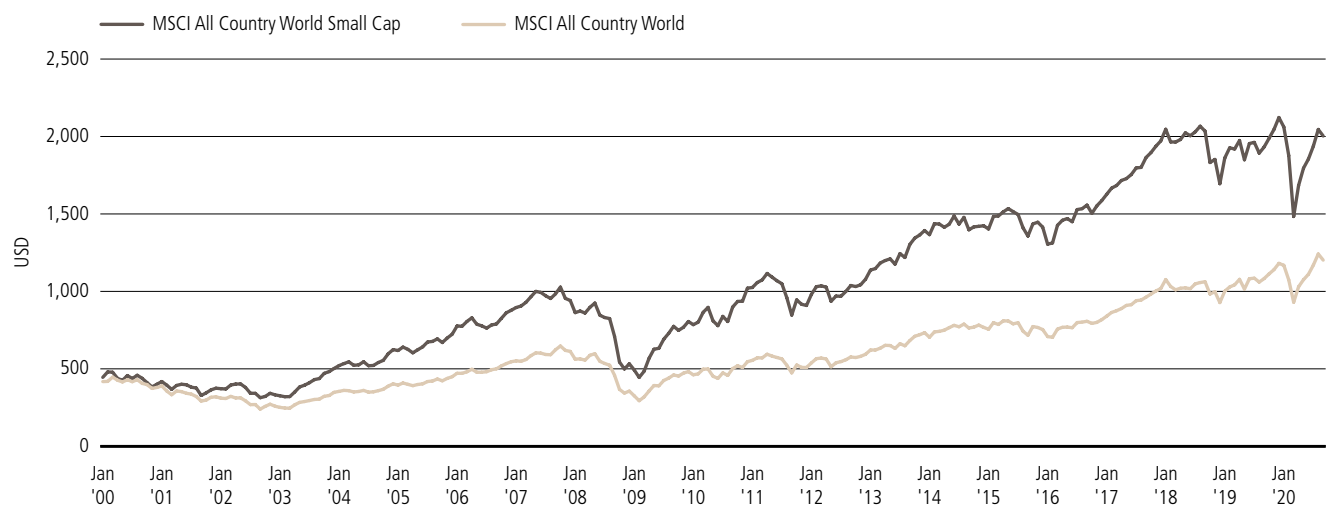
¹ Source: MSCI as of 30 September 2020. **Past performance is not indicative of future results.**

² Source: MSCI as of 30 September 2020. **Past performance is not indicative of future results.**

³ MSCI defines small caps as the companies at the bottom 14% by free float and excludes them from its standard indices.

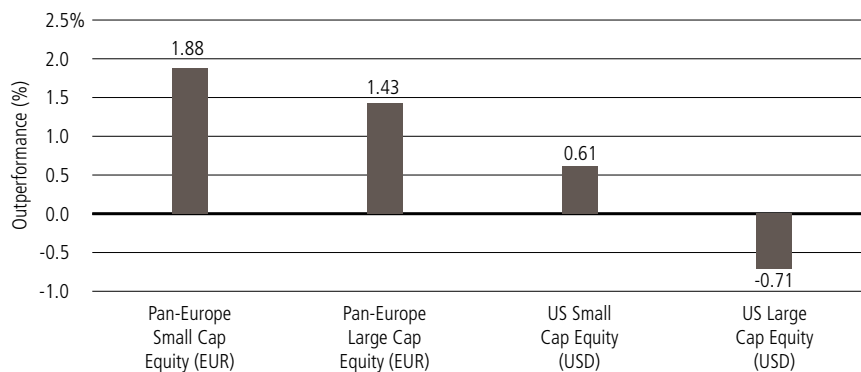


Exhibit 6: MSCI All Country World and MSCI All Country Small Cap (USD)



Source: Bloomberg LLC, MSCI. Data as of 30 September 2020.

Exhibit 7: Relative performance of the median manager against benchmark for five-year period ending 30 September 2020



Source: eVestment, as of 30 September 2020.

accounting for 15.7%.⁴ This means that small cap managers typically have a higher active share than large cap managers.

Exhibit 7 compares the performance of small cap and large cap investment managers relative to their benchmarks in the US and Europe. Over the past five years, the median small cap manager outperformed their benchmark by nearly 1.9% in Europe and 0.6% in the US, while the median large cap manager outperformed their benchmark by 1.4% in Europe and underperformed by 0.7%⁵ in the US. Hence, adding better manager performance to higher overall returns increases the return that small cap investors may realize over the long term.

We believe it is an opportune time for investors to consider increasing their commitment to small cap strategies.

Potential small cap investment pitfalls

Small cap indices often have a larger weight in cyclical sectors such as Materials and Industrials, while large cap indices typically have a larger weight in Information Technology and Communication Services. This is especially the case in the US and less so in Europe.

Small cap stocks also typically have a higher beta. This greater cyclicity has been a negative in 2020, but on a longer-term basis the higher cyclicity and beta is a positive for delivering better returns.

Environmental, social and governance issues are of increasing importance to investors and data for smaller companies can often be more difficult to access due to the relatively low coverage of these companies by data providers but this may begin to change with new regulation in 2021.

An attractive entry point

Clearly, the current earnings environment is very difficult for companies. This makes looking at short-term metrics such as price/earnings (P/E) ratios more challenging. The forward P/E ratio of 21.7 for small caps against

⁴ Source: MSCI as of 30 September 2020.

⁵ Source: eVestment, as of 30 September 2020.

a P/E of 19.2 for the MSCI ACWI reflects the higher cyclicality of earnings for smaller companies and the depressed earnings delivered so far during the pandemic-induced global recession. However, as economies move into recovery phase we should see the greater cyclicality lead to faster earnings growth, thereby justifying the higher shorter-term P/E ratio.

We expect the current disruption to accelerate certain structural changes in how we work and consume. While a few US mega caps are seen as beneficiaries of these changes, there are many investment opportunities in small caps, which are either niche champions or more strongly exposed to structural growth themes than their larger peers.

As the level of public information on small companies is lower, knowledge built up by investors over a long period and through numerous interactions with management teams is hard to replicate

and extremely valuable in building sustainable long-term performance. Hence, a manager with greater depth of resources and experience may have a clear competitive advantage.

Hence, adding better manager performance to higher overall returns increases the return that small cap investors may realize over the long term.

The trends suppressing bond yields

Real yields remain attractive in Asia



Charlotte Baenninger
Head of Fixed Income



Hayden Briscoe
Head of Fixed Income, Asia Pacific

For fixed income investors looking to enhance portfolio returns, does Asia hold the key to finding income in a low yield environment?

The era of negative bond yields in developed markets has continued to present challenges for fixed income investors with approximately USD 15 trillion¹ or the equivalent of 24% of the investment grade fixed income universe yields currently zero or below.

A recent JPMorgan study also found that 76% of all developed market sovereign bonds had a negative real yield.²

Lower yields for longer

The trend of ultra-low yields in developed markets is likely to persist for three main reasons. Firstly, with developed market central bank policy rates at or near the lower bound, longer-dated government bonds have become a

policy tool for central bankers – now active across the yield curve.

Although the Bank of Japan was the first to enact yield curve control and set a zero percent target for 10-year Japanese Government Bonds (JGB) in 2016, other central banks such as the Fed and the Reserve Bank of Australia seem likely to do so albeit at the front end of the curve.

Given the dramatic expansion of fiscal policy across many developed markets, governments will need bond yields to remain low and therefore bond purchases via quantitative easing to stimulate economic growth seem likely for the foreseeable future.

¹ Source: Bloomberg, Bloomberg Barclays Global Aggregate Bond index as of 30th September 2020.

² Source: <https://www.bloomberg.com/news/articles/2020-10-08/jpmorgan-says-real-yields-are-negative-for-31-trillion-of-bonds>

Active fixed income investors can pull on several levers such as interest rate management, asset allocation and security selection in an effort to achieve attractive returns despite low entry yields.

Secondly, central banks are trying to get more creative in moving inflation, and inflation expectations, above target. If successful, and if nominal yields are well anchored, then real yields (yields after inflation) could move even lower.

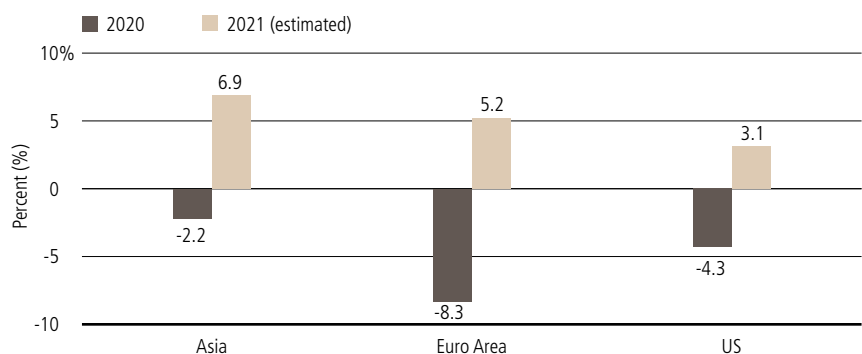
The Fed recently indicated that it would hold rates at very low levels even as prices start to rise to allow inflation to run above target. We believe other developed market central banks will likely follow.

Central banks have committed to buying corporate bonds and ETFs, effectively crowding out private capital. While their interventions in corporate bond markets have diminished recently, their role as market makers of last resort could continue. Additionally, ageing populations in developed countries mean increased savings and demand for fixed income assets are driving yields down even further.

Active fixed income investors can pull on several levers such as interest rate management, asset allocation and security selection to achieve attractive returns despite low entry yields.

So with yields back down to sub-zero levels and income now scarce, where should investors be looking in their search for yield in 2021?

Exhibit 8: GDP growth by region, 2020 vs 2021



Source: FactSet – as at 31 October 2020.



We believe pockets of opportunity exist in emerging markets where only 17%³ of sovereign bonds are negative yielding after adjusting for inflation.

Asia offers growth – and unrivalled yield

In Asia many economies are already in recovery mode, with China leading the way.

This is largely due to Asian countries pursuing a multi-tiered response, including credit support, fiscal stimulus, and well-designed pandemic response measures.

On the monetary policy side, Asian governments have been more reluctant to cut rates – opening a substantial yield margin to take advantage of in Asian high yield markets compared to Europe and the US.

We believe this presents an excellent investment opportunity as yields remain attractive; and investors may further benefit from spread compression.

Asian high yield is also less exposed to commodities and consumer cyclicals than European and US high yield.

China remains a standout

But looking deeper into Asia, China's onshore bond market remains a standout opportunity, and particularly Chinese government bonds given the

Asian governments have been more reluctant to cut rates.

attractive real yields, low correlation to global markets and backing from one of the world's few remaining net creditor nations. We believe this is a compelling risk-reward tradeoff.

Chinese government bonds yields troughed in 2Q20. However, China is now tightening credit expansion and this, combined with a challenging outlook for the global economy, means China's rapid rate of growth may slow from mid-2021. We think further rate cuts are likely in 2H20.

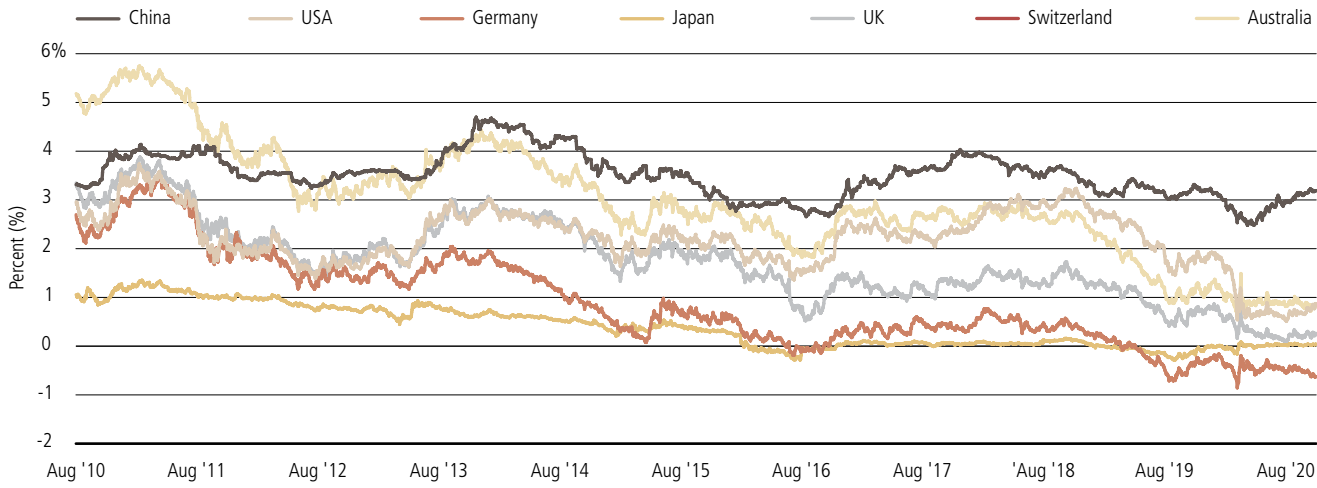
Focus on Asia for 2021

These segments of the rapidly-growing Asian fixed income universe are just two of many yield opportunities in Asia.

An Asia allocation can provide investors exposure to a region poised to bounce back in 2021, as well as strategic long-term positioning as Asia evolves as the world's key growth driver.

³ Source: <https://www.bloomberg.com/news/articles/2020-10-08/jpmorgan-says-real-yields-are-negative-for-31-trillion-of-bonds>

Exhibit 9: Nominal yields on 10-year sovereign debt, Aug 2010–Aug 2020



Source: Bloomberg, As of end September 2020.

Turning to hedge funds for yield

Multi-strategy hedge funds **as an income substitute**



Kevin Russell
Chief Investment
Officer, O'Connor

Market volatility has seen multi-strategy hedge funds make a comeback this year, but how have these returns been generated and what are the structural opportunities for investors looking for yield?

Global financial markets are polarized. On one side are the optimists who see a COVID-19 resolution as inevitable by the middle of 2021 and expect expansionary fiscal policy around the world. Discussions among this cohort often transition to the potential for value stocks to outperform and inflation risks to steepen yield curves in both the US and Eurozone. On the other side are the “lower for longer” group, who see structural headwinds to inflation and virus challenges extending well into 2022. This cohort continues to focus on secular growth names that benefit from a low interest rate environment.

As is usually the case, we expect the real answer here is somewhere in the middle of these bookends, and we see equities,

factors (common attributes of securities that shape different return and risk profiles), and interest rates as likely more range-bound, albeit in a substantially more volatile range than we have seen in the years prior to 2020.

Even as we contemplate the possibility of inflationary pressures and higher interest rates as we are reminded of the historically low nominal interest rate environment currently, we are focused on structuring our portfolio to thrive in a low interest rate environment. So, when the inevitable questions come from investors on where to find income for their portfolios, we are ready and advise that alternatives can really deliver in this regard.

Exhibit 10: Five-year trailing performances – equities and high yield vs. volatility

	Total return (%)	Average 21D Volatility (annualized) (%)
S&P 500 Index	72.0	14.5
Bloomberg Barclays US High Yield Bond Index	35.6	3.7

Source: Bloomberg LLC. Data as of 30 October 2020.

Many alternatives strategies, especially absolute return strategies like multi-strategy hedge funds, offer a risk and return profile that more closely mirrors a credit or income strategy allocation like high yield bonds than it does equities.

This results from the broad construct with which hedge funds approach the market: largely hedging beta, sector, and factor risk, and profiting from relative value discrepancies and inefficiencies in the global equity and credit markets. Increasingly, we are seeing investors recognize this fact and request distributing share classes to complete the yield replacement idea by enabling the strategy to deliver current income for investors.

Additionally, the flexible mandates and broader product capabilities that exist among alternatives asset managers have allowed capital to be allocated to segments of the credit markets from

which banks and broker-dealers have had to retreat due to regulatory pressures.

Two areas of potential yield

Two areas where we are seeing tremendous value and see as structural opportunities for investors looking for yield are private credit and trade finance. While there is inevitably a trade-off in liquidity for investors and a small trade-up in complexity, we have conviction that those risks can be

managed and that investors are being well compensated by getting additional carry and often credit enhancements relative to more liquid credit strategies. Our expectation is that investors will continue to increase their private credit allocations over the next several years, and we believe that the trade finance space will rapidly evolve through securitization and become a replacement for many investors looking for short duration income.

Two areas where we are seeing tremendous value and see as structural opportunities for investors looking for yield are private credit and trade finance.

The income challenge

Ways to look for **yield in multi-asset portfolios**



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Investment Solutions



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Central banks have driven interest rates to record lows in an effort to boost an economic recovery during the pandemic. But can investors find answers to the search for yield within diversified multi-asset portfolios in 2021?

The multi-decade decline in bond yields across advanced economies has cultivated a new conundrum for investors: there is no longer such a thing as a positive risk-free real return, ex ante. As the desire for income generation has not waned, these circumstances have meant it is necessary to think differently when looking at the investment offerings required to meet these needs.

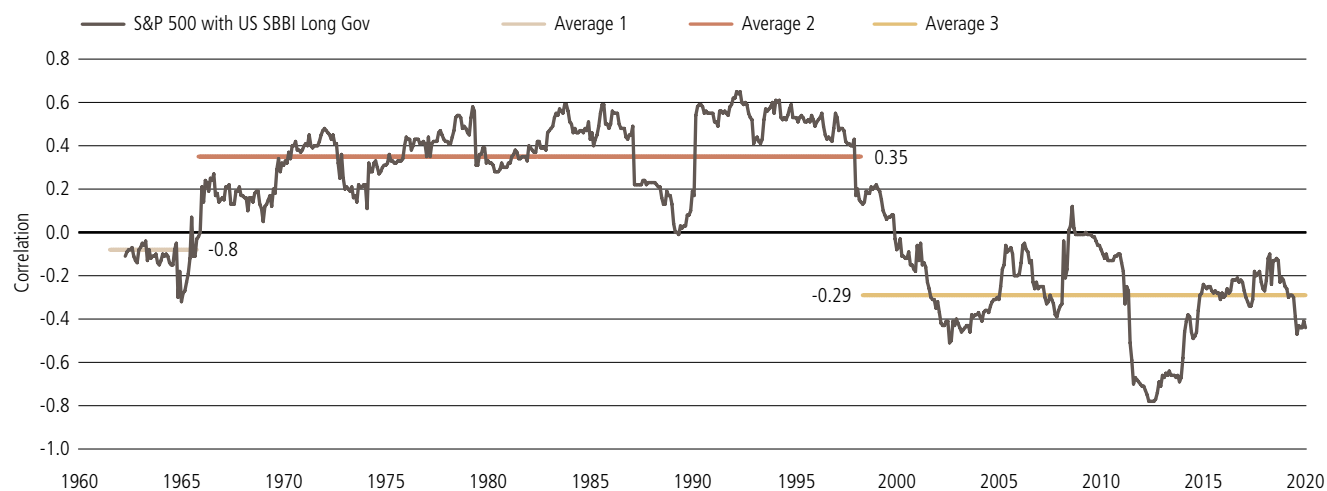
Adding to this challenge is the potential that government bonds will be hard-pressed to deliver the same degree of diversification benefits seen in the past two decades, in which they displayed a robust negative correlation with equity markets. This combination allowed for

simple, traditional portfolio structures to have lower volatility which in turn increases the geometric return.

With interest rates essentially at this lower bound, this relationship has the potential to become less robust and reliable over time. In the short run over the next few quarters, we expect the negative relationship of 2020 to persist. As the economy continues to recover, we believe that equity prices should move upward and interest rates should gradually increase. Conversely, should another shock occur, we see US 10-year rates potentially declining all the way down to 0.2% and expect US long bonds in particular to provide some type of hedge in sell-offs.

Exhibit 11: Stock-Bond Correlation of Nominal Total Returns

Rolling 36 Month Values: S&P 500 with US SBBI Long Gov



Source: Morningstar Direct. Analysis by UBS Asset Management. Data as of August 2020.

A sustained acceleration in inflation that pushes the stock-bond correlation into positive territory is the biggest risk to traditional portfolios that use bonds as their primary hedge against drawdowns in equities.

A more likely risk to portfolios is that the low level of US interest rates and proximity to the zero lower bound results in a stock-bond correlation that edges closer to zero, setting up a situation in which this “safe” asset provides neither meaningful yield nor sufficient diversification.

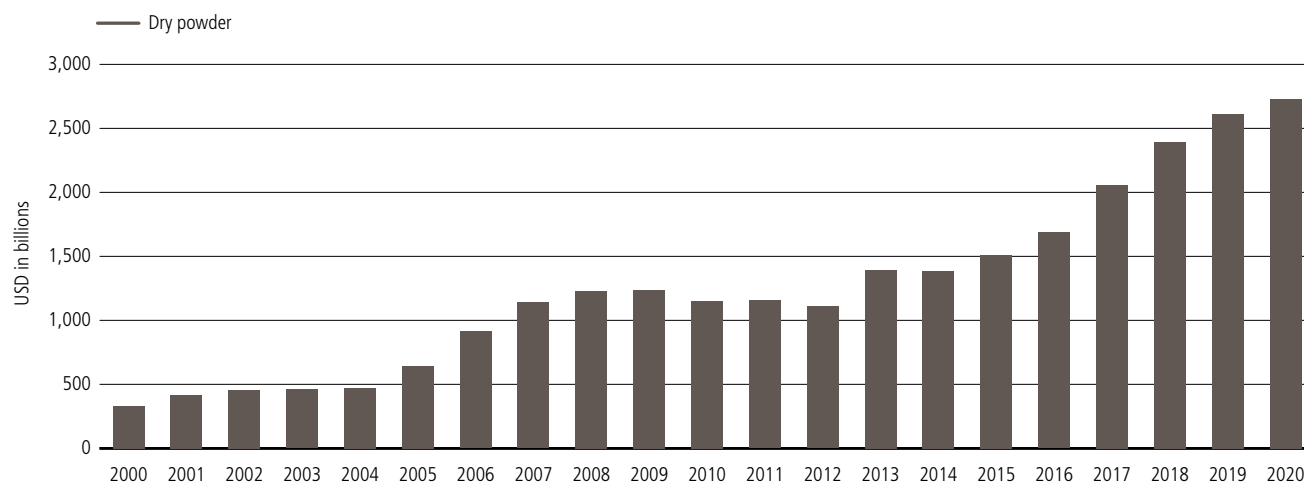
Alternative assets can provide diversification

Today’s market realities highlight the need for a more flexible multi-asset mindset to capture higher income opportunities. We recommend the incorporation of alternative diversifiers to build multi-asset portfolios, particu-

larly private markets if you are able to relax the liquidity constraint (and meet the investor requirements of these private funds). Illiquid alternatives – private equity, property, hedge funds and infrastructure – provide not only diversification benefits, but can be structured to produce attractive, though variable, income.

By and large, alternatives have delivered compelling risk-adjusted returns and can help investors build better portfolios. Private equity has median internal rates of return above public equities over the long term; unlevered real estate looks to be between stock and bonds; and private debt markets have IRRs slightly

As the economy continues to recover, we believe that equity prices should move upward and interest rates should gradually increase.

Exhibit 12: Dry powder (uncalled but committed capital), in USD bn

Source: Preqin. Data for 2020 through September.

above high yield returns.¹ While alternatives are not immune to the pressures of a low yield world, we expect their return premium relative to other risk assets to persist going forward.

Increased capital in private equity

There is already a significant amount of capital flowing into private equity, which covers a large number of strategies and niche markets, broadly broken into three categories: growth/return-oriented strategies, debt strategies, and natural resource strategies. Public pension plans, endowments and sovereign wealth funds are expanding their allocations to alternatives. Total dry powder – the amount of uncalled, but committed capital – is now over \$2.5 trillion, up over \$1 trillion in the last four years.

Real estate investments historically have provided stable income returns over time, while also acting as a risk reducer in portfolios given their low volatility and low correlations to traditional asset classes. Consequently, we expect steady returns in the mid-single digits for unlevered property, with the majority of the return coming from income as well as modest capital appreciation. Another benefit of real

estate is that it can act as an inflation hedge. Should inflation rise consistently above 2%, we expect real estate to perform well relative to other asset classes.

Private infrastructure – income

Private infrastructure has provided a stable source of income, while it is also prized for its low historical correlations to traditional markets. Infrastructure,

Should inflation rise consistently above 2%, we expect real estate to perform well relative to other asset classes.

¹ Preqin database as of 31 December 2019.

Exhibit 13: Risk and return: Historic and prospective²

		Historic 10-yr Performance (%)	UBS's expected 5-yr Performance (%) ³
Public assets			
Global Equities-Unhedged		8.5	7.2
Global Aggregate IG Fixed Income-Hedged		3.9	0.2
US Cash		0.6	0.3
Alternatives			
Private Equity	US Private Equity		8.2
	Global Private Equity	12.2	9.5
Global Real Estate	Unlevered Property	9.7	5.8
	Core Funds	10.8	6.2
	Value-Added/Opportunistic Funds	14.1	6.7
Hedge Funds	Low Volatility		4.0
	High Volatility	3.6	4.7
Infrastructure	Global Infrastructure	10.3	6.2

Notes: Prospective future returns for alternatives are net-of-fees and alpha. Fees: 1.7% for private equity, 0.9% to 1.1% for real estate, 1.0% for hedge funds, 1.2% for infrastructure.

like private equity, is a cash flow investment strategy, but there are substantive differences in the type of investment, payout period, and expected performance that is distinguished from 'traditional' private equity. Moreover, infrastructure is fundamentally different in they are always physical, capital intensive projects, not software or services. They have large up-front capital costs, longer but steadier payout periods, and an

element of government involvement because of the public nature of the investment. In a sense, they are a 'low beta' private equity investment.

Given the demand for private infrastructure investments in a post COVID-19 world, we believe that this is an area that will likely remain resilient and attractive to investors moving forward.

After a torrid 1990s and 2000s, the returns of hedge funds in the 2010s dipped into mid-single digits. We would expect similar modest future returns, but their attractiveness as a diversifier and a source of asymmetric returns should remain. Well-constructed hedge fund portfolios have historically offered low beta exposure to equity and fixed income markets and consequently deserve strong consideration in portfolios.

² Source of historic returns: Global Equities from MSCI ACWI Index unhedged in USD terms (through September 2020). Global bonds from Bloomberg Barclays Global Aggregate Index hedged in USD terms (through September 2020). Cash from FTSE 1-Month US Treasury Bills (through Sept 2020) PE from Cambridge Associates (through March 2020). Unlevered property from NCREIF Property Index (through June 2020). Core funds from NCREIF Fund ODCE Index (through June 2020). Hedge funds from HFRI Fund Weighted Composite (through Sept 2020). Infrastructure from average of median IRRs from Preqin database for 2008-2017 period.

³ We develop 5-year expected returns in the capital markets based on current markets and our expectations of inflation, growth and the path of interest rates. We then overlay our assessment of fair value and the reversion and how quickly the market will react. From here we extrapolate to the different sectors of the capital markets.

Infrastructure spending reviving the economy?

Investible universe **continues to grow**



Declan O'Brien
Head of Infrastructure Research and Strategy



Alex Leung
Analyst, Research & Strategy Infrastructure (North America, Asia)

With vast amounts of infrastructure spending expected in the next 20 years, will the private infrastructure sector see a surge in popularity?

The pandemic and volatility in global stock markets this year has driven interest rates lower, and highlighted the need for investors to diversify in search of high-yielding assets that can provide a stable source of income.

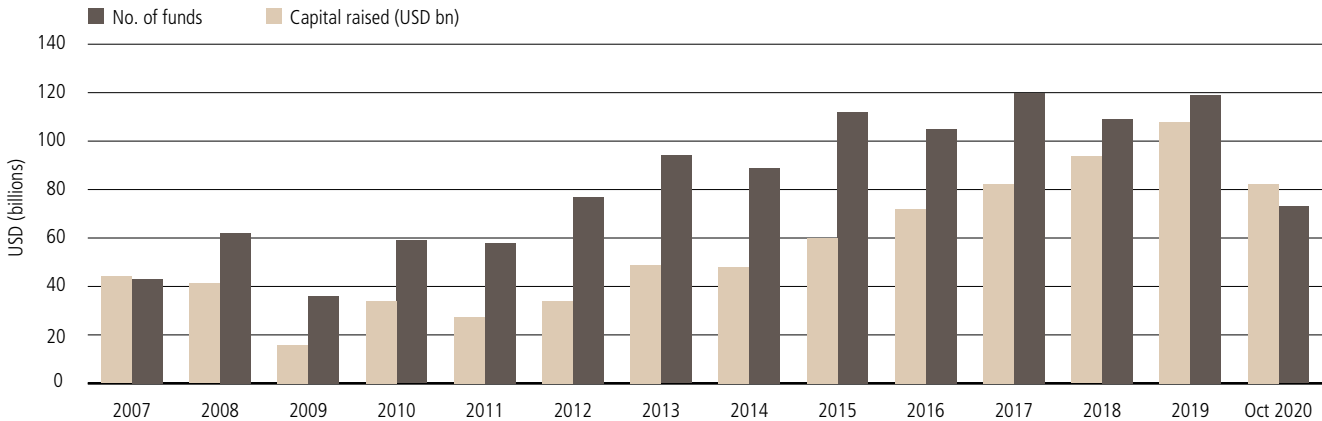
Despite the extraordinary circumstances of 2020, the private infrastructure industry did not skip a beat. In the first nine months of the year, the industry raised USD 74 billion (see Exhibit 14), which may lead to a record year. With the infrastructure universe growing globally, we believe that the asset class looks well positioned to deliver the

desired long-term income stream for investors, particularly with trillions of dollars of investment required globally in infrastructure projects.

The relative stability of infrastructure investments has become particularly appealing during times of public market volatility. In addition, extreme weather events have highlighted the need for low-cost and reliable clean energy, especially since the economics of renewables continue to improve (see Exhibit 15 on page 34). In contrast, commodity price volatility has weighed on the fossil fuels industry.

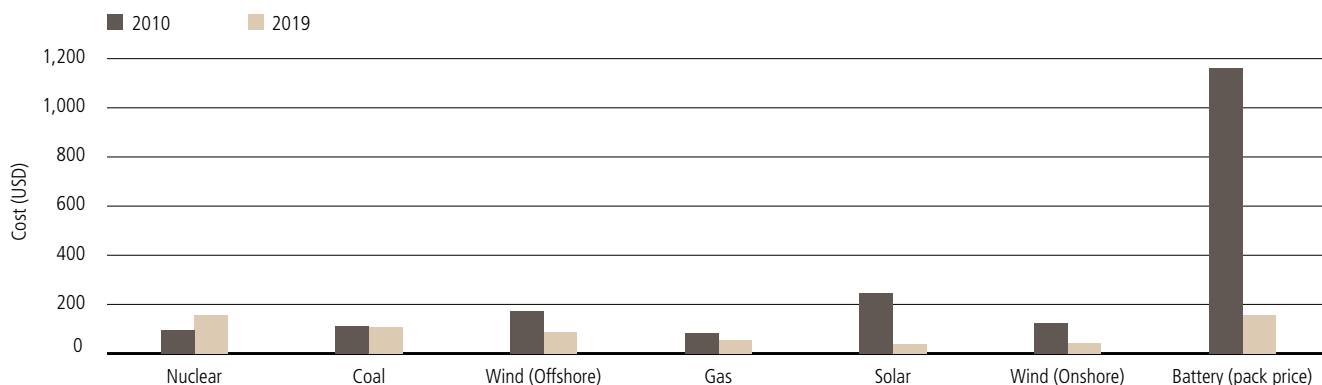
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Exhibit 14: Private infrastructure on track for near-record fundraising year



Source: Preqin, November 2020.

Exhibit 15: Renewables and batteries have become cost competitive



Source: Bloomberg, Lazard Levelized Cost of Energy Analysis 13.0, October 2020.
 Note: Levelized Cost of Energy (LCOE) (USD/MWh) for renewables; pack price (USD/KWh) for battery

The current economic crisis has provided a rare opportunity for countries to hit the reset button, and reprioritize their long-term development goals. Infrastructure spending is a tried-and-true way to alleviate unemployment and kick-start stagnant economies. But unlike past infrastructure stimulus packages, the next wave of investments will likely have a greater emphasis on addressing environmental, social and sustainability issues.

For example, the EUR 1 trillion European Green Deal Investment Plan has now taken on even greater importance, not only as a way to tackle climate change, but also to revive local economies. The EU’s action plan is for Europe to be climate neutral by 2050 by investing across green energy, transportation,

energy efficient buildings, and other environmentally-friendly technologies. This presents vast opportunities given the scale of investment needed.

The EU recognizes that the public sector cannot bear the entire burden of decarbonization and will use a budget guarantee to allow the European Investment Bank (EIB) and other partners to invest in higher-risk projects while “crowding in” private investors.

In the US, President-elect Joe Biden’s policies could help boost green infrastructure investments. His USD 2 trillion climate plan promises to invest across green transportation, electricity and building sectors, while creating millions of new jobs. However, if Republicans retain control of the Senate after the January runoff elections, they will likely push back on these plans. We believe investors can still remain cautiously optimistic, as there is actually more

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bipartisan support for renewable energy than what the headlines suggest. For example, red states such as Texas and Oklahoma actually have the largest wind power capacity in the US, while swing states such as Arizona and Nevada boast the highest solar power potential. There are incentives for both parties to reach a consensus.

Telecommunication is another sector that has received significant attention during the pandemic. High speed internet has enabled working-from-home and remote-learning. However, rural areas and low-income neighborhoods generally have poor access to

high speed internet, and have essentially been deprived of these essential services during lockdowns.

In a recent poll by the Internet Innovation Alliance, 90% of respondents support Congress using federal funds to expand broadband internet network infrastructure to areas that currently do not have access, and 88% support Congress increasing support to those who cannot currently afford broadband internet. The next wave of telecommunication infrastructure investments will therefore need to address the current digital divide across different communities.

Looking ahead, it is clear to us that the mega-trends of energy transition and digital transformation are here to stay, and that infrastructure is an ideal way to gain exposure to these long-term themes. The private Infrastructure industry, equipped with over USD 200 billion of cash reserves, will likely play a significant role in the next wave of infrastructure investments.

Driving sustainable outcomes

Increased regulation **could present opportunities**



Susan Hudson
Head of Regulatory Management



Michael Baldinger
Head of Sustainable and Impact Investing

How is the regulatory landscape set to change over the coming months and what do those changes imply for the allocation of capital?

Will regulation shape the sustainable investing agenda?

Susan Hudson

Sustainability risks are increasingly viewed by asset managers, investors and regulators as a potential source of financial risk. This is why we have seen some asset managers integrate environmental, social and governance (ESG) considerations into their investment processes, not least to meet the requirements of clients who also recognize the financial and other benefits of sustainable investing (SI).

As a large-scale asset manager, we believe that the capital markets will ultimately help address these challenges.

We expect capital allocated towards those companies best placed to transition to a long-term sustainable future, and away from those less able to do so, will most likely deliver improved returns.

The regulatory landscape

To respond to the threats posed by sustainability risks, governments and national regulators are focused on establishing frameworks and disclosure standards for the financial sector to take sustainability into account in investment decisions.

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The United Nations has taken the lead with the United Nations Paris Agreement adopted on 16 November 2016, and agreed by 125 countries, including the UN 2030 agenda for sustainable development. Adopted by 193 countries, this is a wider agenda than climate change and is also focused on economic, social and environmental development.

Other initiatives include the Financial Stability Board's task force on climate related financial risks, the UN Principles for Responsible Investment, and steps taken by the UK and France on stewardship and 'comply or explain' principles which encourage companies to increase disclosure. It is clear that governments are becoming increasingly serious about tackling this issue and Hong Kong, Singapore, Germany, Switzerland, Spain, Canada and the US are all examining this topic more closely.

Sustainable investment in the EU

But it is the European Union that is the first jurisdiction to make a major start in setting out new guidelines.

In 2018, under the Action Plan on Financing Sustainable Growth, the EU launched a 10-point program to reorient capital flows, impose requirements on financial institutions to take sustainability risks into account and encourage companies to disclose more information on sustainability on the basis of effective metrics and a long-term view.

The EU wants to encourage investment in sustainable activities and the new disclosure regime is intended to increase transparency and give investors the ability to compare products and sustainability outcomes.

Today all firms in the EU are free to define sustainable investments as they see fit. But from March 10, 2021, investment firms will be required to classify their offerings according to whether and how they incorporate sustainability based on new standards published last November in the Sustainable Finance Disclosure Regulation (SFDR).

For certain products, classified under Article 8 and 9 of the SFDR, investment firms must explain how environmental or social characteristics are promoted or investment in sustainable activities is achieved.

Initially, this disclosure will be high-level and principles based but will be further enhanced once the SFDR Regulatory Technical Standards are in force and new rules requiring corporations to disclose more non-financial information



on sustainable activities are introduced. Currently, we expect these developments from 2022.

Key break out points

- Investment firms marketing ESG products in the EU will need to report on sustainable investment using EU categorizations and definitions.
- Investment firms will engage with companies to request better information on sustainable activities.

- Data companies will strive to bridge the gap by mapping their existing data points to the EU requirements.
- As more data becomes available from corporations, the disclosure of sustainable characteristics and activities is intended to become a comparable metric for certain products.
- It remains to be seen how other jurisdictions will use the work done in the EU to inform their thinking.

According to a survey conducted by the Board of the International Organization of Securities Commissions (IOSCO, April 2020), there are more than 12 initiatives currently underway across the globe on reporting principles and frameworks.

Fragmentation remains a risk in the near term with more clarity and alignment needed. In April 2020, IOSCO decided to establish a Sustainability Task Force with a mandate to promote transparency and investor protection, including “decision useful” disclosures.

This will be welcomed by issuers, investors and regulators and will help drive a level playing field over time.

Investment firms must explain how environmental or social characteristics are promoted or investment in sustainable activities is achieved.

From ESG to SDGs: shifting to outcomes

Michael Baldinger

What does the European Union's commitment to a carbon neutral economy by 2050 mean for the way we invest? Are we standing on the cusp of a transformation in the capital markets?

For investors, the change in mindset demanded by the EU's new regulatory standards for sustainable finance, is, in our view, little short of transformational. Not only does it carry the clear potential to accelerate the shift towards sustainable investing, it also signals a fundamental change in investment approach.

We have written previously about ESG shifting from a 'nice to have' to a 'must have'. What the new regulatory frameworks are signaling is the need for investors to go further still. The integration of ESG factors has become a given; now we see a move towards investing for measurable impacts and outcomes aligned with the Sustainable Development Goals (SDGs).

EU Taxonomy objectives

To illustrate this point we can look at the objectives of the EU Taxonomy, described as " ... a tool to help investors, companies, issuers and project promoters navigate the transition to a low-carbon, resilient and resource-efficient economy".¹ As well as seeking to define a "unified classification system" for sustainable economic activities, it also aims to drive sustainable outcomes across the ESG spectrum.

To be included within the EU taxonomy, an investment first has to meet the regulation's definition of "sustainable".²

Broadly speaking, this means it is:

- An investment in an economic activity that contributes to an environmental objective, in a measurable fashion. For example, by quantifiably impacting more efficient use of land and water in a positive fashion
- An investment in an economic activity that contributes to a social objective. For example, by tackling inequalities or investing in economically or socially disadvantaged communities.
- An investee company which is characterized by "sound management structures, employee relations, staff remuneration and tax compliance"

But the obligations implied by the Taxonomy don't end there. Taxonomy eligible activities also need to:

- Make a substantial contribution to at least one of six pre-defined environmental objectives, these being:
 - Climate Change Mitigation
 - Climate Change Adaptation
 - Sustainable use and protection of water and marine resources
 - Transition to a circular economy, waste prevention and recycling
 - Pollution prevention and control
 - Protection of healthy ecosystems
- Do no significant harm (DNSH) to the remaining objectives
- Meet minimum social safeguards, for example, the UN Guiding Principles on Business & Human Rights

The latest UNPRI guidelines for responsible investment amplify this approach, by urging investors to aim for outcomes rather than minimize risks in the portfolio. Most UNPRI signatories committed to the principles over a decade ago. Implicit in the latest guidelines is an assumption that they're already up to speed on integration and now need to move on from here.³

Regulation implications

This reshaping of the regulatory and policy landscape has fundamental implications for the growth of ESG and the allocation of capital. As PWC summarized in their recent report, *The Growth Opportunity of a Century, 2020*

"... rising legislative and regulatory pressure has bolstered the increased attention ESG is receiving and is likely to have the biggest impact on accelerating the shift to a sustainable model of investing. As the regulatory landscape develops, unsustainable corporates will lose out on capital and non-compliant sectors will be penalized as a result."

A shift in flows

Already we see this shift reflected in flows – according to our research in July earlier this year, SI Focused Funds had raised USD 124bn Net New Money (NNM), out of an overall industry NNM figure of USD 196bn. The next step will be the realization of positive impact generated by that capital. That will represent one of the greatest transformational opportunities for economies, societies and the environment.

¹ TEG Final Report on the EU Taxonomy P.g.2.

² Regulation (EU) 2019/2088 Article 2, Para 17.

³ <https://www.unpri.org/sustainable-development-goals/investing-with-sdg-outcomes-a-five-part-framework/5895.article>

Seizing AI opportunities

Artificial Intelligence and the investment industry



Bryan Cross
Head of Quantitative
Evidence and Data
Science (QED)

Artificial Intelligence (AI) is set to be transformational and could provide fundamental investment ideas directly to portfolio managers and analysts in 2021 and beyond. Are we ready for AI?

Over the din of the lunch hour cafeteria, there was a shimmer in the air – a sense that something great was being discovered. This was different than a normal lunchtime at Los Alamos National Laboratory in 1950 where the Cold War had mobilized the West's brightest minds.

During a normal lunchtime one could expect breakthroughs in particle physics or in fusion power, but there was a buzz today that could not be attributed to the Chicken Kiev.

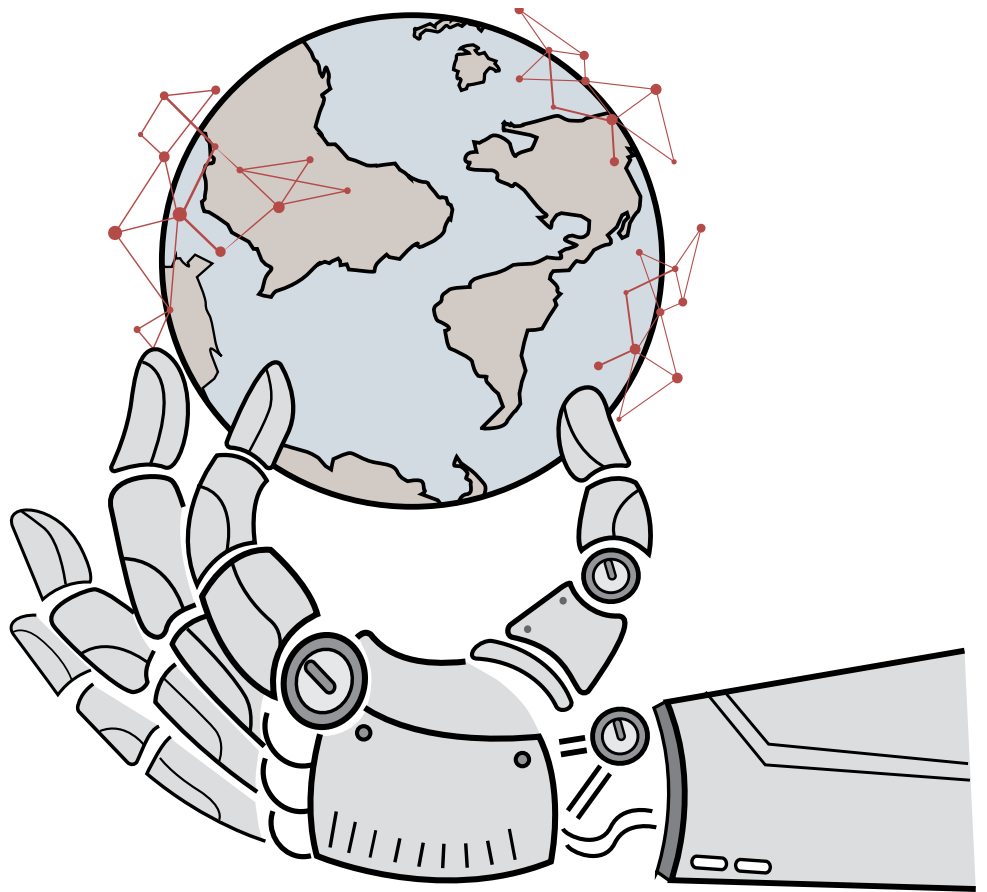
Three great minds were at work solving one of life's great existential questions – *are we alone in the universe?*

The Manhattan project alums were scribbling calculations on napkins, debating, questioning:

- How many stars in the universe?
- How many are like the Earth's sun?
- How many have planets?
- How many have planets that are old enough to transmit information as far as the Earth?

It was a frenzy. A crowd began to gather – many aware of the recent reports of UFO sightings nearby.

Finally, as the calculations poured in and the Coke bottles slurped the last gasp of soda, the math was obvious – there

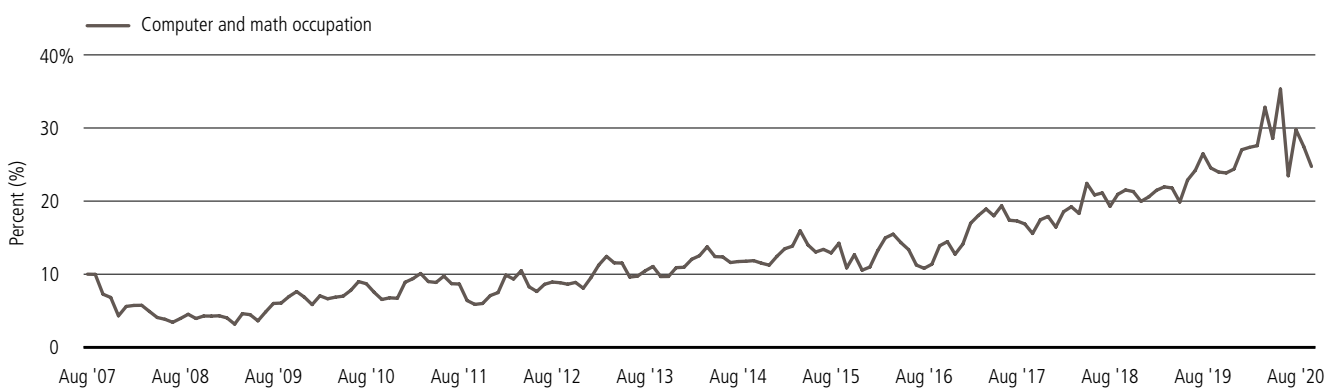


must be intelligent extra-terrestrial life in the universe – the vastness of the universe assured the outcome to be true.

BAM! The hand of an Italian-American physicist from the University of Chicago slammed the table. The “architect of the nuclear age” was troubled, the conclusion did not make sense to Enrico Fermi – “But where is everybody?”

The contradiction between the obvious math and the lack of a conclusion has become known as Fermi’s Paradox – if intelligent extraterrestrial life is such an obvious conclusion, then where is it?

Exhibit 16: Share of finance job openings that are computer/math oriented



Source: Linkup. Data as of 1 October 2020.

An investor's dream – a computerized Buffett in every team

Just as those scientists looked to the stars for signs of intelligent life, investing has for decades looked to computers and quantitative methods for signs of Artificial Intelligence that can help make smarter decisions. But after decades, finance is confronted with a similar paradox.

There is a persistent dream of putting an AI-driven version of Warren Buffett in every investment team, one with all the positive qualities but none of the negative biases and behavioral errors that come pre-installed in humans.

The excitement of building such a revolutionary computer-based system to pick investments has driven billions of dollars of investment into building systems and hiring big-brained PhDs. The share of job openings in finance

that are computer or math driven has nearly quadrupled since the Great Financial Crisis.

But most actively managed assets are still non-quantitative in nature

Despite all the investments, decades of academic papers, computer systems, and fortunes made in quant investing, the vast majority of actively managed assets are still non-quantitative in nature.

Traditional active managers will tell you quantitative techniques are not long-term enough and question how a diverse portfolio can really know anything about the "risk" of a company.

Quantitative practitioners will fire back with a long dated backtest or logic derived from perhaps flawed statistical techniques and say, "Isn't it obvious that quantitative techniques are superior to anecdote and heuristic-driven investment?"

The two schools of thought are seemingly opposed and have spent the better part of seven decades without reconciliation.

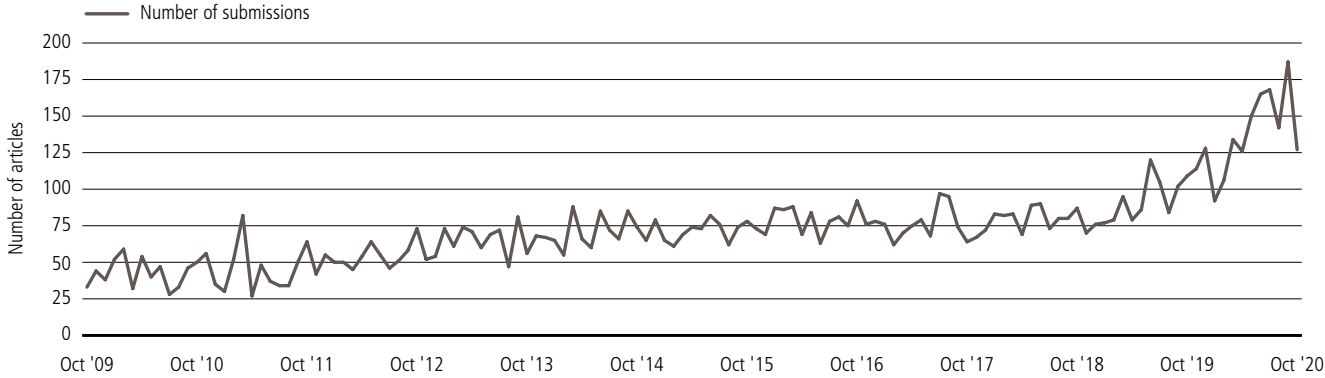
Sure, some quantitative techniques have permeated into risk management or screening for stocks – but there is no AI analyst working side by side with humans to make investment decisions better. Why not?

Combining human-driven investment research with enhancement from a junior AI researcher could leverage the best of both worlds.

A team like that would combine the long-term, complex thinking of a human with unbiased quantitative evidence based decision making of AI.

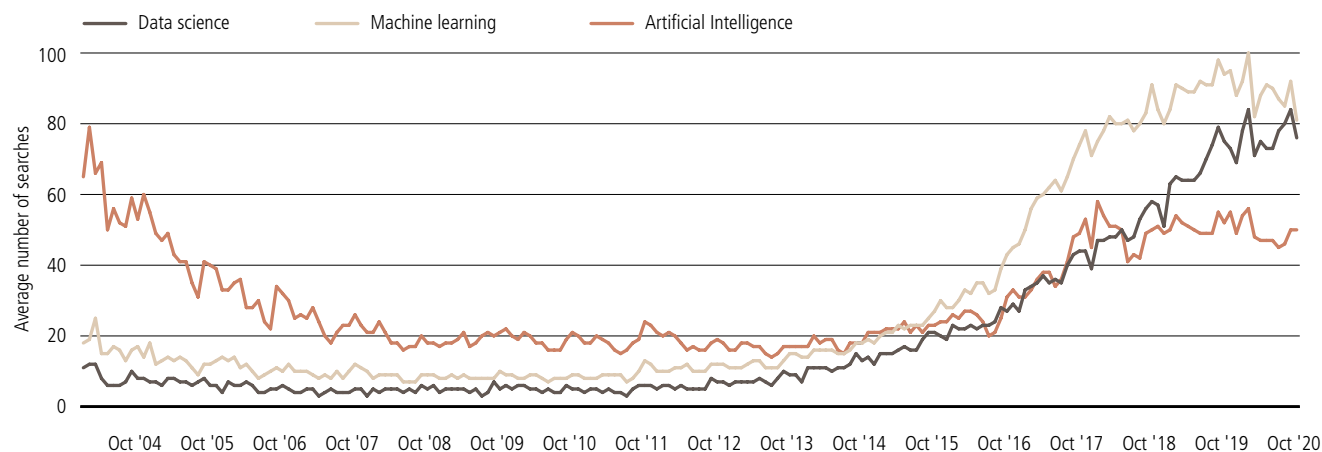
There is no AI analyst working side by side with humans to make investment decisions better. Why not?

Exhibit 17: 6-month average article count for “Quantitative Finance”



Source: Arvix. Data as of October 2020.

Exhibit 18: 6-month moving average Google trends search interest



Source: Google. Data as of October 2020.

Combining humans with AI to perform investment research seems like such an obvious goal and the resources being thrown at the problem are vast – but where are the AI investment analysts? In order to resolve this similar paradox, we need to rethink how finance approaches the use of AI.

The goal of embedding AI has failed so far because the aim is misguided

In a classic scene from the movie Jurassic Park, which has now become a meme, the mathematician Ian Malcolm wonders aloud that scientists “were so preoccupied with whether or not you could, you didn’t stop to think if you should.”

This is emblematic of the state of AI research and specifically in its application to quantitative finance. Everyone

is so eager to demonstrate that they are “state of the art” that there is no thinking going towards applying AI in the right way.

The above search trends demonstrate the fashion of doing something “fancy” rather than building something transformative in the right manner.

In quantitative finance, this trend has manifested itself in the overuse (and potentially misuse) of alternative data combined with machine-learning.

Rather than thinking about the longer term solutions to the problem, the field is rushing to outperform each other in using niche data to perform task specific solutions.

As a result, the alpha itself is fleeting and the applications do not generalize across a broad spectrum of investment problems. Additionally, the industry is laden with tales of good intentions that fail to get adopted into the traditional investment workflow.

Aligning AI with how investors think is the key to progress

If one stops to think about what makes a great investor, it’s not typically a niche task specific process that differentiates the legends from the temporarily lucky.

Because markets are complex systems whose dancing landscapes are constantly changing, the best investors are generalists by nature. They take mental models and are able to apply them over and over again.



A Nobel Laureate perspective

Robert Merton, winner of the Nobel Memorial Prize in 1997 in Economic Sciences for establishing a new method to determine the value of derivatives

Artificial intelligence (AI) is rapidly advancing many industries around the world. To what extent will it transform financial services?

“In fintech, the idea is, ‘It’s only a matter of time. First, we’ll be better than the average analyst, then we’ll be better than the best analysts.’ That comes from a model that assumes technology alone is trusted. I would assert, with a lot of certainty, that technology by itself is not trusted. In financial services, you need competence and trustworthiness. Silicon Valley will enhance those who have created competence and trust – not take their business away from them. The person we trust can use technology to project themselves to a larger audience. That’s why fintech by itself or technology by itself won’t displace the roles played by financial advisors.”

In a time where everything is uncertain, it’s hard to know what’s real and what’s fake. UBS Nobel Perspectives addresses the questions shaping our world, cutting through the noise and nonsense, and holds the largest content library of Nobel Laureate interviews. Learn more and join the community to stay up to date on all the latest news and events.

<https://www.ubs.com/microsites/nobel-perspectives/en/latest-economic-questions.html>

They do not merely learn facts, rather they learn models and systems which they can reach into their toolkit and apply when appropriate.

The computational complexity is low and the objective is to handicap all possible outcomes – to discount the implied market not to forecast. They think about what investments present asymmetric payouts from a probabilistic perspective in a folksy back-of-the-envelope manner.

To build AI that can successfully be implemented in Investing, we must align the design of the machine with the cognitive tasks of great investors.

Quantitative Evidence and Data Science (QED) is working on building an improved approach to AI

Our team at UBS-AM, called QED, has taken the approach of focusing on investor workflows as a guiding principle – we want to understand what are the things that investors do in order to help them form the investment mosaic to help them make a decision.

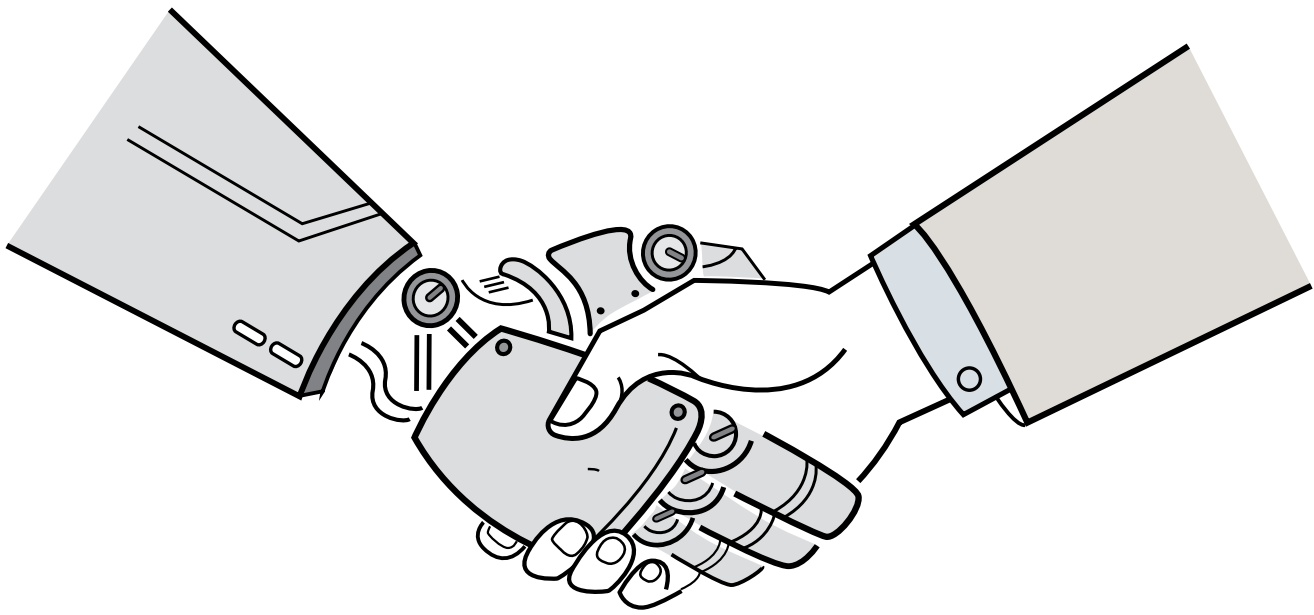
In the next several years, QED will be spending more and more time focusing on how to generalize these workflows and to combine them with heuristics (problem solving techniques to generally use self-educating and trial and error methods) to form investment conclusions.

Our goal is to create a form of Artificial General Intelligence (AGI) that can apply reasoning to identify and apply mental models hidden in novel problems and then to, ultimately, make an investment recommendation.

QED has focused on aligning our machines with real investment workflows. In the next year we will focus on an effort to generalize those workflows so that ultimately the machine can make real investment recommendations.

This may seem to be an audacious goal; however, the process to get there is the best way for us to help drive science into the fundamental investment process.

As we solve problems in the path towards AGI, we can directly apply the solutions into the investment workflows.



Markets remain human constructions

Does this mean that QED is trying to disintermediate human financial analysts?

Not at all. In Philip K Dick's 'Do Androids Dream of Electric Sheep?', – the basis for the classic film Blade Runner – humans apply the Voigt-Kampff test to potential replicants (AI's) to determine if they are human or AI.

The test presents disturbing images to the subject, if the subject shows empathy he/she is human, if not the test proves the subject is AI.

Empathy is the secret weapon of human analysts and because human goals – like saving for retirement, investing in a climate aware manner – are the *raison d'être* for investing, we will always need people in the loop.

While QED's goal is developing AGI, it is doing so in the context of having an empathic human in the loop and machine process working together towards better client outcomes.

Finding Artificial Intelligence – The human plus AGI analyst team of the future

The benefits of an AI/human partnership to client outcomes are clear and should motivate us to pursue this opportunity.

The effort to build a successful integration of AI into the investment process doesn't need to yield inconclusive results like Fermi's paradox. Finance must align the design of AI with how investor's think and as part of an empathic human partnership or else the efforts are in danger of becoming just a fancy tool that operates at the periphery and we'll all be left to ponder that if it was so obvious then where are all the AI analysts?

Why UBS Asset Management

Drawing on the breadth and depth of our capabilities and our global reach, we turn challenges into opportunities. Together with you, we find the solution that you need. At UBS Asset Management we take a connected approach.



Ideas and investment excellence

Our teams have distinct viewpoints and philosophies but they all share one goal—to provide you with access to the best ideas and superior investment performance.



A holistic perspective

The depth of our expertise and breadth of our capabilities allow us to have more insightful conversations and an active debate, all to help you make informed decisions.



Across markets

Our geographic reach means we can connect the parts of the investment world most relevant for you. That's what makes us different—we are on the ground locally with you and truly global.



Solutions-based thinking

We focus on finding the answers you need—and this defines the way we think. We draw on the best of our capabilities and insights to deliver a solution that is right for you.

What we offer

Whatever your investment profile or time horizon, we offer a comprehensive range of active and passive investment styles and strategies designed to meet your needs across all major traditional and alternative asset classes. We also offer platform solutions and advisory support, to institutions, wholesale intermediaries and wealth management clients. We are a truly global firm with principal offices in Chicago, Frankfurt, Hartford, Hong Kong, London, New York, Shanghai, Singapore, Sydney, Tokyo and Zurich. Our invested assets total USD 980 billion¹ and we have around 3,500² employees, including around 860 investment professionals, located in 22 countries.

Who we are

We are one of the largest managers in Alternatives: the second largest fund of hedge funds manager³ and fifth largest manager globally of direct real estate.⁴ We are a leading fund house in Europe, the largest mutual fund manager in Switzerland,⁵ the best-selling European active fund house⁶ and the top foreign firm in China.⁷ UBS's passive offering, encompassing index and systematic strategies, provides smart beta, alternative indices, and other custom solutions to meet our clients' needs. We are the second largest European-based indexed player⁸ and the fourth largest ETF provider in Europe.⁹

Past performance is not indicative of future results.

¹ As of 30 September 2020.

² As of 31 December 2019 (updated annually). Around 1,250 internal and external FTE from Corporate Center (representation functions within the Corporate Center spending 80% or more of their time on UB AM – serving as a conservative proxy for Corporate Center).

³ HFM InvestHedge Billion Dollar Club, published October 2020.

⁴ INREV / ANREV Fund Manager Survey 2019 (dated as of 31 December 2018).

⁵ Morningstar/Swiss Fund Data FundFlows, March 2020.

⁶ Ignites Europe, January 2019.

⁷ Z-Ben Advisors: April 2020.

⁸ UBS Asset Management analysis of AUM from company disclosures, September 2020.

⁹ ETFGI European ETF and ETP industry insights, March 2020.

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Americas

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EMEA

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