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January, 2021

A Cross Asset View of Equities

A New Policy Environment and Changing Needs of Asset Owners will Frame the Outlook of Capital Markets

BERNSTEIN

GLOBAL VIEW
JANUARY 2021

A CROSS-ASSET VIEW OF EQUITIES

A new policy environment and changing needs of asset owners will frame the outlook for capital markets

The outlook for inflation is a key macro debate. Deflationary pressures from high unemployment and decreasing velocity of money set against greater desperation from policy makers and the new fiscal tools they possess. Net, we expect inflation to rise.

Asset owners will have to increase risk levels despite high asset valuations. This involves including factors alongside traditional asset classes and higher equity weightings.

A return of inflation is tactically supportive of the Value factor; so we are overweight. However, we think the yield curve will not steepen to the usual extent, causing a bifurcation within Value.

Ongoing fiscal support and real rates held at negative levels imply a debasement of fiat currencies. Thus, we remain overweight gold. We also think cryptocurrencies may have a role alongside gold in institutional portfolios.

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PORTFOLIO MANAGER'S SUMMARY

This *Blackbook* frames the investment narrative of coming years as the confluence of two large forces: the emergence of a different policy environment and the changing needs of asset owners. It is because of the combination of these themes that we describe this as a *cross-asset* outlook, as these forces together shape the outlook for all capital markets and different types of return streams.

A key macro debate is whether the policy response to the pandemic will be inflationary. On balance, we think it will be, as policymakers need to generate inflation given debt levels, while they also find themselves in possession of new fiscal tools unimaginable a year ago. However, there are strong deflationary forces as well, in particular high unemployment; we also think the velocity of money is set to slow further.

An example of where the two narratives underlying this *Blackbook* combine is in the need for asset owners to take on more risk, and the resulting implications for strategic asset allocation. This may force asset owners to use factors alongside asset classes, and also lead to higher equity weightings, long-short exposure, and greater exposure to real assets.

The Value-Growth debate is again of key concern. A plausibly inflationary outlook makes the outlook for Value more positive than it has been for years. However, a policy need to stop a pronounced steepening of the yield curve means that strategically the Value factor bifurcates. We advocate selective exposure to global Value.

Much of this *Blackbook* is concerned with where asset owners can turn for positive real returns that can also offer diversification, should stocks and bonds no longer be effective mutual diversifiers. This leads to a case for income strategies within equities.

The Staples sector within equities stands out, due to a particularly strong cross-asset case in the medium term, rather than its merit relative to other equities.

With rates locked low and the prospect of more fiscal support leading to inflation, there is a clear prospect of debasement of fiat currencies. Therefore, we remain overweight gold, both for its return prospects and for its role as a diversifier. We also think allocations to cryptocurrencies have a role in institutional portfolios alongside gold.

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SIGNIFICANT RESEARCH CONCLUSIONS

Why is this a *cross-asset* view of equities? In short, because this is where the most significant flows are going to take place in coming years. The confluence of an utterly different policy environment and a much more difficult prospect for asset owners means, we think, that a cross-asset perspective is the most appropriate lens through which to view investment decisions in coming years.

Through 2021, there will be a tactical investment narrative around reopening, but the strategic focus will be on: (1) the fact that we can finally learn what the post-pandemic policy environment might look like and (2) how asset owners adjust to that. A very specific example of this presents itself in what is probably the pre-eminent macroeconomic question for 2021 and beyond, which is the outlook for inflation. We think there are distinct tactical and strategic narratives here. 2021 has the prospect of potentially sharp rebounds of prices in specific areas of the economy, as even a slight increase in demand meets very tight inventory levels. There is then a more strategic inflation narrative that derives from the desperation of policy makers to engineer inflation and their significantly expanded toolkit with which to achieve this — i.e., handing cash to people. Either way, we think we are due an increase in the volatility of inflation.

In this SRC, we lay out our base case for tactical and strategic horizons, motivate why a cross-asset lens is the correct way to look at the equity market, and lay out the narrative that we explore in considerably more detail in later chapters.

Thus, the big themes that run though this outlook are:

- **Inflation:** Our base case is that the policy response to the pandemic will end up being inflationary. Yes, we are still in the midst of a deflationary shock, but over the course of 2021, we expect inflation expectations to rise significantly above their pre-pandemic level. Inflation expectations in Europe may lag those in the US, and there are some extra impediments in Europe (policy freedom and a greater risk of zombie companies), but we expect both regions to see inflation emerge. There are strong contrary deflationary forces too, which we discuss.

- **Low real yields:** Despite expecting inflation to emerge, we think the yield curve will not steepen as much as would normally be expected. This reflects both the desire of policymakers to keep the cost of debt below the growth rate and the fragility of inflation in the absence of wage inflation. Empirical evidence of this view is already emerging.

- **There is disagreement on this macro prognosis**: Not everyone agrees that (a) there will be inflation or (b) that if there is inflation, then the yield curve will not steepen as much as usual. It is over the course of 2021 that we will likely see evidence on whether both

parts of this view hold. This has huge implications for the desirability of duration in equities vs. fixed income and, hence, could lead to significant flows. Within equities, it goes to the heart of a group of tactical questions for 2021 on the case for Value vs. Growth and whether Value can include Financials.

- **Asset owners need to increase risk levels:** Low returns and higher inflation mean asset owners will likely have to increase risk levels despite high asset valuations. For pension funds, the other options are to cut payouts or to increase contributions, which are politically difficult. Thus, we think asset owners will buy more equity, more real asset exposure, more long-short returns, and they will be forced to include factors alongside asset classes in their asset allocation decisions. Increasing risk levels and making sure fees are only allocated where really needed will, we think, lead to a rethinking of the nature of strategic asset allocation, a subject we covered in our previous *Blackbook*, A New Paradigm for Investing. Increasing risk levels also brings to focus the question of the kind of risk to have exposure to. In a world where returns of asset "betas" are lower, the importance of idiosyncratic alpha rather than the traditional definition of alpha is greater.

- **New policy environment:** The level of public sector debt creates a strong desire to generate inflation, but more significant still is the extra set of policy tools available that would have been unimaginable a year ago, in the form of direct cash handouts to people or businesses. An interesting tactical question is: to what extent do governments find themselves able to end furlough schemes or other handouts? More strategically, a set of fiscal policies that allow direct payouts when mixed with a post-pandemic structurally higher level of unemployment and wider inequality, point in the direction of polices such as universal basic income (UBI). We can debate what strictly counts as adoption of Modern Monetary Theory (MMT), but quasi-MMT doesn't seem so far-fetched.

In terms of key market calls, what do these themes entail?

- **Value:** There have been so many false dawns for the Value factor that we have lost count. Yes, there are structural headwinds (automation destroying moats around industries; real rates pinned low, impeding mean-reversion; and the growth of intangible assets) raising the question of whether Value is being measured correctly. However, over and above all of these, one element has been missing — inflation. If our call in this *Blackbook*, that inflation can return, is correct, then we think the Value factor will rally. But can the whole Value factor stage a sustained recovery or it is a question of a series of tactical rallies that require timing? If so, it would be difficult to profit from it. We suggest that a more specific Value exposure can offer a more reliable and strategic way to benefit from inflation.

- **Growth:** In parallel to a selected exposure within Value, we also want to maintain a Growth exposure in the US. Real yields held low and greater longevity of Growth mean the case for Growth still remains. The main danger would be a significant steepening of the yield curve, but we don't think that is likely to happen. In the cross-asset language of this *Blackbook*, we think investors should hold exposure to long duration in equities, but not in fixed income.

- **Income:** Investors have a need for assets that pay a positive real yield and offer some diversification from equity beta. We think that a greater portion of an income portfolio has to come from equities, particularly those with higher quality characteristics and able to maintain dividends.

- **Equity markets' lackluster rise:** For the market overall, we forecast positive but small positive returns. The main impediments are high valuations and that we have just seen the most intense period of upgrading of earnings forecasts ever. However, a return of inflation (assuming it does not surpass the 4-5% range, which we think is a distant prospect) will likely encourage more flows into this asset class.

- **Stock-bond correlation:** As inflation rises, there is a risk that bonds become a less good diversifier of equity risk. This prompts a rethinking of some of the accepted norms of asset allocation of recent decades and a hunt for diversifiers.

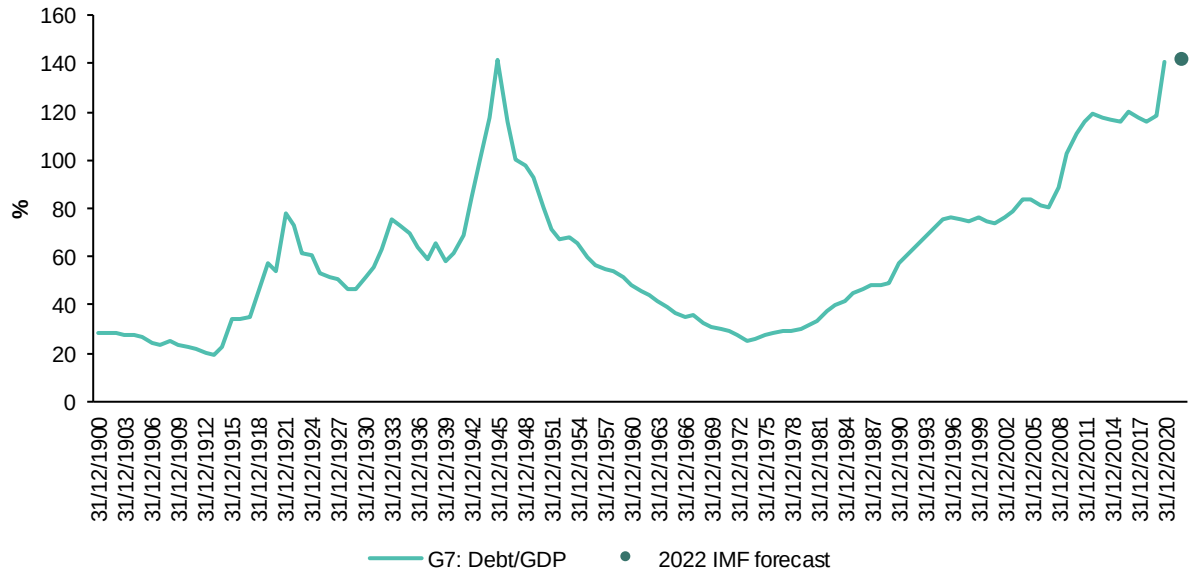
- **Gold and cryptocurrencies:** Alongside an equity overweight, we also think there will be growing demand for non-fiat currencies and so continue to be bullish on gold. We think cryptocurrencies can complement that position and recently changed our stance on cryptocurrencies accordingly.

Inflation or not…

Probably the central macroeconomic question is whether the outlook is inflationary or not. While we think, on balance, the policy response to the pandemic will indeed be inflationary; we freely recognize that strong deflationary forces abound. In early 2021, we are also likely to see a mix of short-term price pressures as a pick-up in demand meets limited supply with longer-term policy-induced attempts to raise inflation, and it may be hard to unstitch these effects. We find that the investors we speak to are split on the issue.

The case for a structural rise in inflation compared to recent years is easy enough to lay out. It lies in the desperation of policy makers to generate inflation combined with the new tools that they find themselves in possession of. The debt-GDP ratio for the G7 has reached a level last seen at the end of WWII (see Exhibit 1). However, back then the need to rebuild the capital stock and favorable demographics pointed to an ability to grow out of the debt. Today those forces are absent, hence inflating away the debt is a more tempting option.

EXHIBIT 1: **G7 government debt/GDP ratio**



Note. Debt to GDP is weighted by the total share of GDP of each country.

Source: Global Financial Data (1900-2018 actuals), IMF estimates (2019-20), and Bernstein analysis

Policy makers have been trying to generate inflation for the past decade without much success. However, the pandemic and its associated lockdowns have transformed the policy environment. It has suddenly become acceptable for governments to hand out cash to individuals or businesses, e.g., in the form of direct cash hand outs (in a sense, helicopter money), furlough schemes, and business support schemes. Whereas quantitative easing (QE) could raise asset prices, it seems more plausible that such fiscal routes can have a more direct impact on broader inflation.

The case against inflation is also strong. Unemployment is likely to remain very high and we think is unlikely ever to fall back to its 2019 low, as the pandemic will have brought forward job losses that would have happened in coming years due to automation. So, if there is inflation, it is likely to be in the absence of wage inflation. In addition, the pervasive deflationary forces that have been part of the reason all the iterations of QE failed to be inflationary, such as automation and demographic trends, are still in place.

On balance, we think the scale of the monetary and fiscal response makes an economic case in favor of inflation. However, for us the real clincher is politics not economics. While it seems unlikely that full MMT is actually adopted as policy, given its need for a different institutional structure, aspects of quasi-MMT are evident in the current conjunction of fiscal and monetary policy. What happened to the Tea Party? Instead, we have record debt levels and MMT, if not as policy, being increasingly used as a *description* of the economy. We cover this in the "Inflation, Investing, and the Coming of MMT" chapter.

A further hurdle to generating inflation is likely to be a decline in the velocity of money. We think a legacy of the pandemic is savings rates having to materially increase compared to average levels of the last decade. For believers in the quantity theory of money, this implies

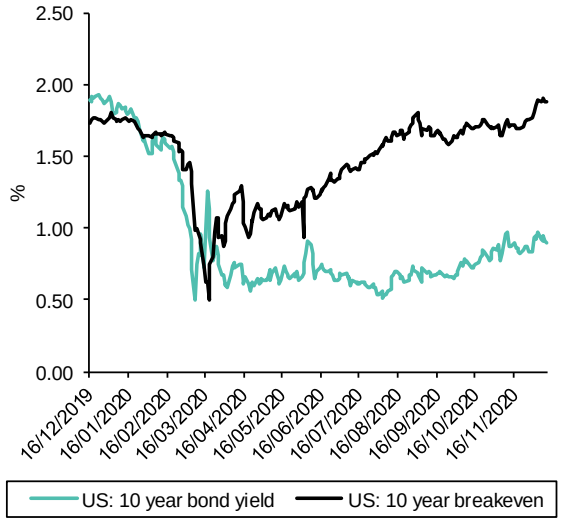
ever greater increases in the money supply may be required to generate a given level of inflation. As part of the narrative of this *Blackbook*, which attempts to link both the policy outlook and the changing needs of asset owners, this links the challenges of long-run pension investing with policy decisions aimed at generating inflation, that we discuss in the "Savings, Velocity, Inflation, and Pension Investing" chapter.

But this is not just a question of long-term strategic policy decisions. The first half of 2021 is likely to see its own inflationary pressures. Inventory levels were very tight even pre-Covid-19 and have now become tighter, and many sectors have materially cut supply. In addition, there are supply constraints that result from the imposition of lockdowns. H1 2021 is likely to see a pickup in demand that meets limited supply and thus, could well result in surprisingly rapid price increases in certain segments of the economy. We discuss where prices might move fastest in the "So Where, Exactly, Might Inflation Show Up?" chapter.

The difficulty for investors will be in distinguishing between rapid price increases that are a function of tight inventories vs. rapid price increases that might indicate a policy error; these would have very different implications.

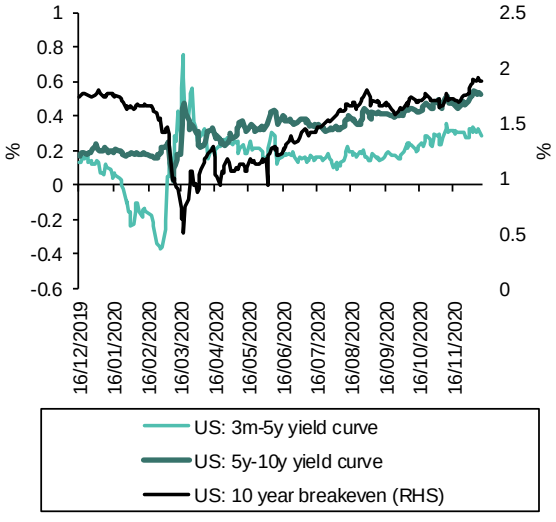
The other key policy decision we are likely to learn more about in 2021 is whether the link between bond yields and inflation has changed. There is a strong argument that policymakers may wish to keep the cost of debt below the growth rate. This implies the yield curve may not steepen in a commensurate way with any increase in inflation expectations. There are already signs of this in the apparent disparity between the recovery in 10-year inflation breakevens but a smaller increase in 10-year bond yields (see Exhibit 2). Likewise, the US yield curve out to five years has remained remarkably flat as inflation expectations increased in the latter half of 2020 (see Exhibit 3).

EXHIBIT 2: **US 10-year yield vs. 10-year breakeven inflation rate**



Source: Datastream and Bernstein analysis

EXHIBIT 3: **US yield curve vs. 10-year breakeven inflation rate**



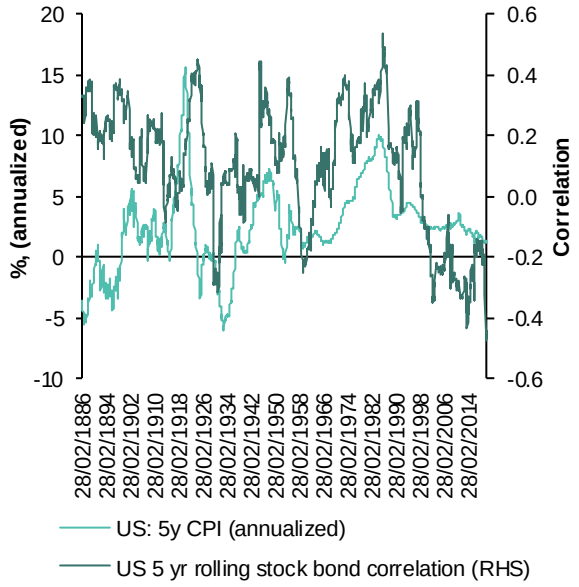
Source: Datastream and Bernstein analysis

We argue that an outlook that sees a return of inflation (at least assuming it does not rise more than the 4-5% range) and real yields pinned low implies investors should overweight equities. Yes, the Value factor can recover with inflation, but equity assets that have a long duration and a link to inflation can also do well, as we discuss in the "Duration in Equities Good, Duration in Bonds Bad" chapter. More generally, this distinction is a key part of forming a longer-term view of equity allocations, which we analyze in our "The Strategic Sector Outlook Post Covid-19" chapter.

Stock-bond correlation and the challenge of finding diversification

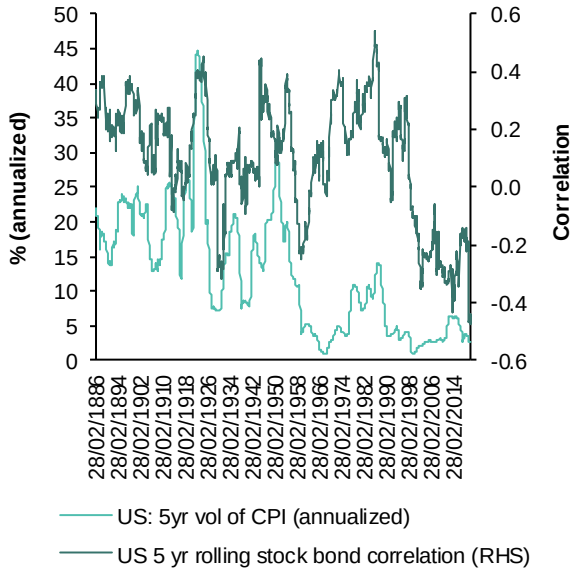
Over the long run, we can observe a structural positive link between both the level and the volatility of inflation with stock-bond correlation (see Exhibit 4 and Exhibit 5). While the relationship does not always hold, if our base case of higher inflation in the coming months holds, it should create upward pressure on the stock-bond correlation and at least create the risk that bonds might not diversify equity risk.

EXHIBIT 4: **US inflation and stock-bond correlation (five-year horizon)**



Source: Global Financial Data (GFD), Datastream, and Bernstein analysis

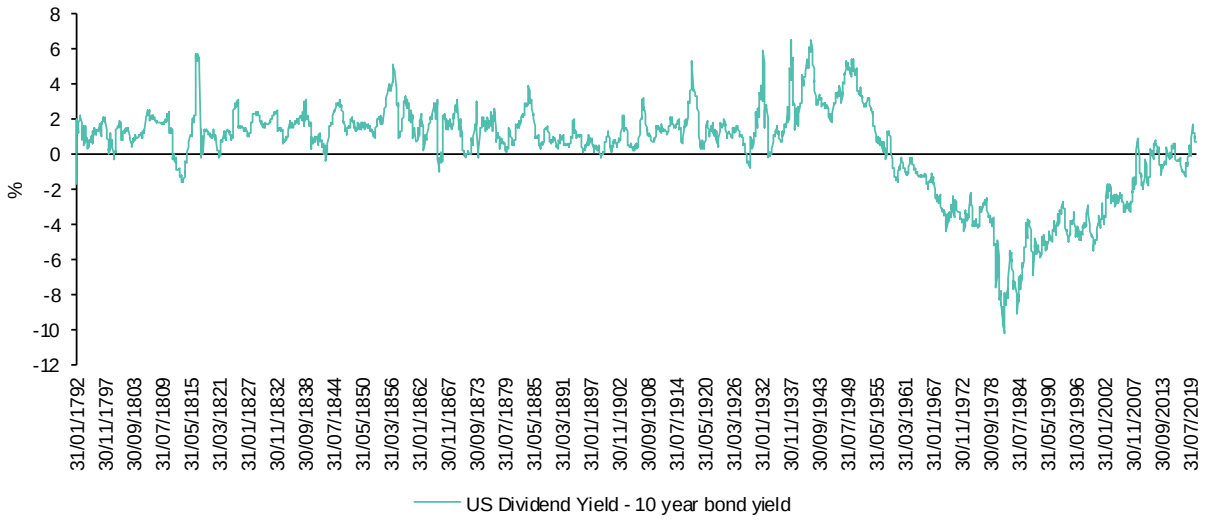
EXHIBIT 5: **US volatility of inflation and stock-bond correlation (five-year horizon)**



Source: GFD, Datastream, and Bernstein analysis

The risk of a change in the assumed level of stock-bond correlation is a good example of why a cross-asset view of equities is now very relevant. High-grade fixed-income assets suffer from three potential problems: (1) the probability of delivering negative real returns, (2) longer duration as rates have declined and, hence, increased interest rate risk, and (3) the risk that they may be less good diversifiers of equity risk. We explore in our "The Best Fixed Income Portfolio Right Now Is…in Equities" chapter the potential for equities to fulfil part of the income potential of fixed income, with a particular focus on higher quality dividend-paying stocks. Yes, this "story" has been around for a long time, but we argue that it has renewed importance, given the extreme level of yields and the potential for inflation. As shown in Exhibit 6, the yield spread of equities over bonds is greater than at any point in the last 50 years.

EXHIBIT 6: **Dividend yield exceeds bond yield by most since 1955**



Source: GFD, Datastream, and Bernstein analysis

A sector that is particularly deserving of a cross-asset case in this context is Consumer Staples. Indeed, in our "The Cross-Asset Case for Staples" chapter, we argue that it is from a cross-asset perspective that the most bullish case can be made for Staples.

Value

Late 2020 witnessed a significant rotation into Value and out of Momentum. Probably the key question for positioning in early 2021 is can this rotation continue, or was that it? In a sense, it feels like we have been here many times before during the last decade of a general underperformance of Value. Value trades tend to be pro-cyclical, so it is easy enough to make a case for the factor doing well as vaccines support a more sustained recovery. However, for us the key feature that makes the potential for Value stronger now than at any point over the last decade is the prospect for inflation and the role of an equity Value trade in providing investors with a way of participating in that. Again, another reason to see this trade from a cross-asset standpoint.

Yes, there continue to be structural impediments to Value, but the prospect of a sustained period of inflation changes everything for the factor. Not to mention that in a world where nearly all asset classes are expensive, maybe Value is the only cheap "asset" available to investors. We discuss this in our "The Fed, the Market, the Value-Growth Debate, and Inflation" chapter.

However, the prospect that inflation may not be followed by a commensurate steepening of yield curve raises important questions as to the mechanism by which inflation supports Value trades. In the "Value is Dead, Long Live Value" chapter, we disaggregate Value stocks into commodity cyclicals, core cyclicals, and Financials. We show that these groups have different relationships between inflation expectations and the yield curve. Value stocks that lie in the Energy and Mining sectors have the most clear-cut link with aggregate inflation. If inflation rises, then these stocks tend to strongly benefit. Value stocks in the core cyclicals also benefit mainly from increases in inflation rather than needing to see a steepening of

the yield curve. This is particularly relevant in the case of individual industries that have the potential to display potentially significant price-raising ability in 2021. For Financials, however, more of the support tends to come from the yield curve. Banks can still find tactical support as inflation rises in 2021. However, investors who wish to express a structurally positive view of Value over a multi-year horizon might need to be more selective in their exposure toward Value and focus on core cyclicals and commodities.

There is a more defensive and less pro-cyclical take on Value in the form of companies that have attractive levels of free cash flow (FCF) yield. In fact, while this factor did less badly than many other Value factors in 2020, the failure of this factor to deliver acyclical returns was one of the more disappointing aspects of Value-type factors over 2020. We discuss this in detail in the "If Cash Ain't King Anymore" chapter, and show that there is still a case for a free cash yield factor as a less cyclical form of Value and as an element of an income portfolio in 2021.

Growth

Is this the end of the Growth trade? We think that it is still right to hold US Growth in the medium term as outlined in our "Why US Growth Can Continue to Shine" chapter. Yes, Growth stocks may underperform in months that see rapid rises in prices, shifts up in the yield curve, or particularly strong macroeconomic recovery data. But looking through those short-term dynamics, we think the medium-term case for Growth depends on two attributes that still hold: (1) real rates being anchored low and (2) the greater longevity of Growth for high-growth companies (see Exhibit 7).

EXHIBIT 7: **High profitability companies are staying highly profitable for longer: percentage of stocks in the high ROE decile at time t which are in either decile 1 or 2 one to five years later**

Note: In each quarter since 1990, we split the stocks in the MSCI US index into groups by ROE decile (within sectors) and calculated the percentage of stocks in the High ROE decile at time t that were in the highest 2 deciles over the next one-to-five year period. A four-quarter smoothing is applied to the quarterly percentages.

Source: FactSet and Bernstein analysis

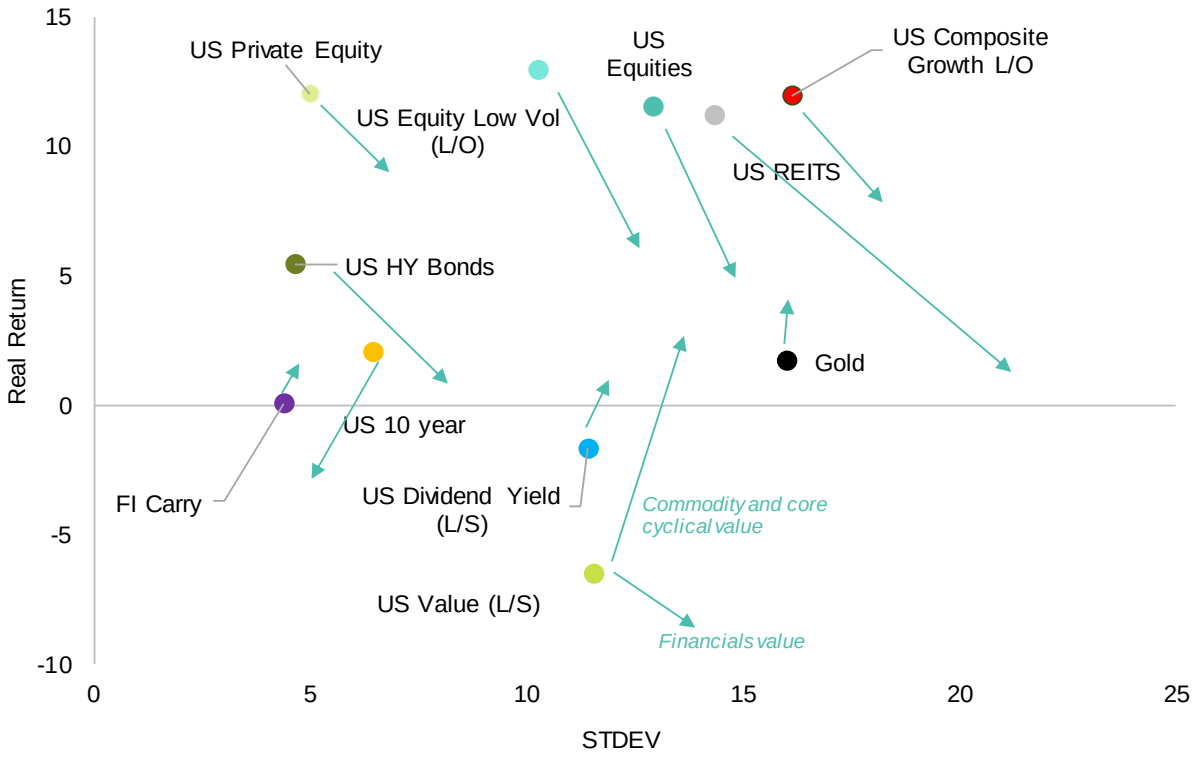
What all this means for the overall portfolio

Even if stock-bond correlation does not become positive, any weakening in the negative correlation between them at the same time as the return-risk trade-off of major asset classes deteriorates implies a significant increase in portfolio risk for a given level of return.

Even without an inflationary impulse there was a case that risk levels would have to increase to maintain future returns at rates investors have become used to in the context of the run-up in asset values over the last 30 years. In addition to potentially making diversification harder — or at least requiring different kinds of diversifying assets — an increase in inflation raises the bar on required return if, as seems likely, earning a spread over inflation is the "true" ultimate benchmark for many types of savings. After all, if one cannot at least preserve purchasing power, then what is the point of saving in the first place?

Exhibit 8 shows the real return-risk trade-off of the main categories of return streams that pension plans and other asset owners can buy. The dots show the achieved level of the last decade and the arrows indicate how we think these will evolve over the next five years. We explore this in detail in the "Let's Play Twister, Let's Play Risk" chapter.

EXHIBIT 8: **Asset owners have to take on more risk: pension plans may be *forced* to add factors alongside asset classes**



Note: The dots represent the last 10 years of real returns and volatility for the major return streams investors can buy. The arrows represent Bernstein portfolio strategy team forecasts for the next 5-10 years.
US Private Equity data is compiled from 1,562 funds, including fully liquidated partnerships, formed between 1986 and 2019. All returns are net of fees, expenses, and carried interest. Data is provided at no cost to managers. Data provided as of Q1 2020.

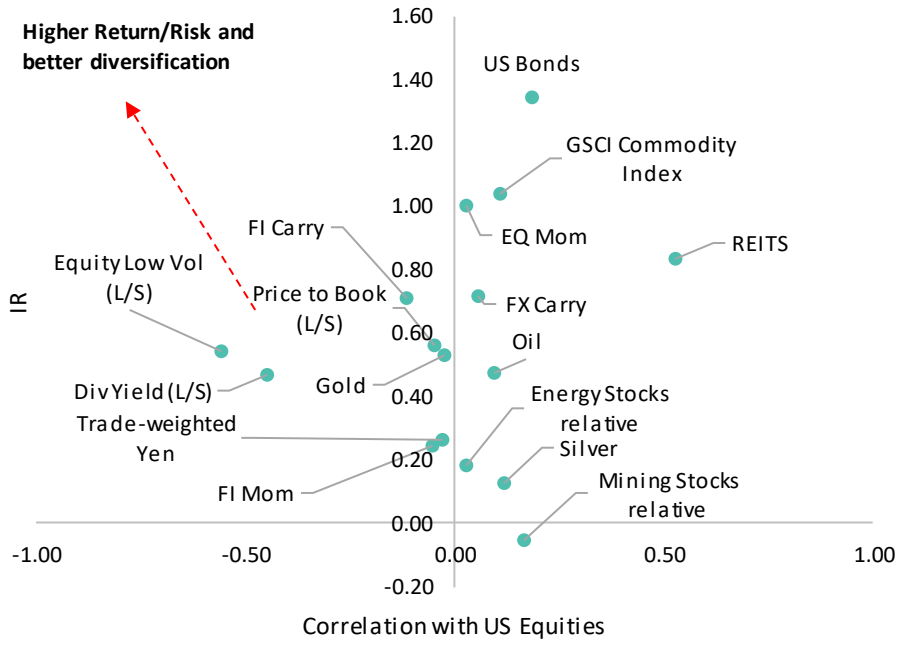
Source: Cambridge Associates, Ken French data library, FactSet, Datastream, FRED, and Bernstein analysis

If this analysis is correct, it implies that in order to meet real-return objectives and aid diversification in portfolios, factors and asset classes need to be made fungible in the strategic asset allocation process. Only investing on the basis of unlevered passive positions in the traditional asset class building blocks creates the risk of failing to achieve that core target of investing — the preservation of purchasing power.

This is a specific example of the case we outlined in our previous *Blackbook*, A New Paradigm for Investing. The building blocks of strategic asset allocation can be thought of not as standard asset classes but as beta and idiosyncratic alpha. While a theoretical case for such an approach to investing could have been made for some years, in the post-pandemic world we see this as more of an urgent need.

If inflation rises, but does not hit the 4-5% range, it implies that equities become the core overweight in a portfolio. Thus, for the overall portfolio, the question that presents itself is: what assets can be added that offer a reasonable return-risk trade-off but can also diversify equity risk. We examine this question in the "Multi-Asset Portfolios in the Crisis and the Outlook for Diversification if Inflation Rises" chapter. Exhibit 9 shows the trade-off of return-risk vs. correlation to equities for a range of return streams in periods when inflation has exceeded 3%. One wants to buy return streams on the upper-left-hand side of the chart, which suggests a role for equity income strategies, bond carry, and gold, among others. We note that on this basis US 10-year bonds don't look so bad, but this is the historical experience since the 1970s, i.e., when yields have been materially higher than today's level; so, we do not expect the returns to be as good now should inflation rise in this way.

EXHIBIT 9: **Return-risk vs. correlation with equities when inflation >3%**



Note: Correlation is calculated as average 12-month rolling correlation with US equities based on monthly returns. IR is calculated as year-over-year return of the asset divided by annualized standard deviation. Returns for Energy, REITS, and Metals & Mining are from 1974, returns for FX Carry are from 1975 and returns for GSCI Commodity index and Oil are from 1971. Equity PBK, Dividend Yield, Momentum, Low Variance, Low Residual Variance, FI Momentum, FI Carry, and FX Carry factor strategy returns are Long/Short. Energy and Metals & Mining sector returns are relative to broader US equity market.

Source: AQR, Ken French data library, Datastream, and Bernstein analysis

High public and private sector debt levels and the likelihood that the policy debate in many countries could favor increasing debt levels further, and further direct fiscal support mean that the risk of debasement of fiat currencies has to be a concern. We have long favored an increased allocation to gold in portfolios. In addition, we think cryptocurrencies could be complementary to gold. This is a change of view for us. In the past, we thought the high volatility of cryptocurrencies ruled them out of mainstream asset allocation decisions. We explain this change of view in the "Cryptocurrencies in Asset Allocation — I Have Changed My Mind!" chapter. Two changes have occurred; the "small" one is that the volatility of bitcoin has declined, especially relative to other assets such as equities. But the main reason for the change of view is the scale of the build-up of debt post the pandemic, and how this changes the tone of the policy debate and the risk of inflation.

The final chapter of this *Blackbook* "Will They Let the Bankruptcies Clear?" considers the other policy unknown for 2021-22 — will they let the bankruptcies clear? 2020 has seen a record level of credit issuance and also brought into question the viability of many businesses. On top of this, the quality of non-financial debt prior to the pandemic had reached a historical low, e.g., if measured as the proportion of investment-grade debt that was at the lowest possible tier of investment grade, or as the proportion of loans with cov-lite structures, etc. This implies that if "normal" conditions applied, we should expect a large uptick in bankruptcies. In Europe especially, we think there may be more nervousness about triggering bankruptcies that would put yet more upward pressure on unemployment rates just as attempts are made to roll back furlough schemes; thus, there is a greater

likelihood of more "zombie" companies. In the US there may be greater acceptability of allowing bankruptcies to clear, but some companies being left in a zombie-like state might be inevitable. For companies that emerge as going concerns, if they have used the pandemic to issue long-maturity fixed-rate debt, a bout of inflation could actually put them in a good position, as it shrinks the real value of that debt.

This *Blackbook* is an attempt to bring together distinct big narratives: the likely path of policy and how this has changed post pandemic, the outlook for capital markets and different types of return streams, and lastly, the problems asset owners face. It is the confluence of these topics that lies at the core of the strategic investment outlook. For this reason, we think a view on the equity outlook at this juncture has to be formed from a cross-asset perspective.

INFLATION, INVESTING, AND THE COMING OF MMT

OVERVIEW

- We think the policy response to the pandemic will, on balance, be inflationary, although there are strong contrary forces as well. We work though the arguments for and against inflation in this chapter.

- The reasons in favor of an inflationary outcome are: (1) the size of policy response, (2) the temptation for governments to inflate their way out of current debt, (3) the Fed indicating a tolerance for inflation to overshoot, and (4) supply disruptions.

- However, there are strong reasons against an inflationary outcome as well: (1) unemployment being unlikely to ever fall back to the 2019 level, (2) all previous QEs failing to generate inflation, (3) large number of zombie companies that could keep inflation depressed, and (4) unfavorable demographics, deunionization, and automation all remain fundamentally deflationary pressures.

- But the clincher for us is that the direction of the political-economic debate is suggesting a material change in the *nature* of the policy regime. Even if we don't get actual MMT as *policy* anytime soon, it seems likely that it becomes a more common way to *describe* the economy.

- If politicians adopt that narrative, it points to a much looser and more active role for fiscal policy, and also brings other policies such as UBI closer to being politically acceptable. Inflation breakevens have risen sharply over the last nine months, but this is more about undoing the worst possibilities of a deflationary shock. They have not yet started to price in a decisive shift higher in inflation.

- The issuance of government debt is not only a story about how expenditure is funded, it is also crucial for the supply of assets to savers. Negative real rates, let alone the prospect of any form of MMT, decisively shift the balance from savers to creditors. Yet many governments (especially the US and the UK) continue to want individuals to bear the risk of saving for retirement.

- What should portfolios look like if all this is right? US equities are at an all-time high multiple. Looking past near-term high volatility (which seems very likely), we think medium-term investors are going to be forced to buy more equities from this already expensive starting point. An unenviable prospect. Finding other assets that can also deliver positive real returns but also diversify equity risk is then key.

DETAILS

Reasons for and against the outlook being inflationary

One of the biggest issues for a medium- or long-term investment view right now has to be whether the policy response to the pandemic is finally inflationary or not. There has been a significant increase in inflation breakeven rates and 5y5y inflation swaps since March 2020. But they are still close to the level of 2019 in the US and below that level in Europe. This recovery is more about reducing the scale of the near-term disinflationary shock of the pandemic. These series do not yet price in a significant increase in inflation, that still lies ahead.

We work through the arguments for and against an inflationary future. Our conclusion is that on balance, yes we think it will be inflationary. However, this is ultimately not really an argument about economics and more one of the political economy and the extent to which a new macroeconomic regime creates a different investment backdrop. We consider the implications of this for portfolios.

We can summarize the case for and against inflation succinctly as follows, the rest of the chapter explores this in more detail.

Why the outlook is inflationary: (1) This essentially comes down to the observation that policy makers are now more desperate to generate inflation, given the size of the debt burden, and also that they have new fiscal tools available to them (handing cash to people), which have a more plausible claim to impact broad-based inflation (as opposed to asset-price inflation) than QE ever did.

Specifically, central banks indicating they are willing to see inflation overshooting on the upside. Most notably, Chairman Powell's comments in H2 2020 explicitly outlined the view that inflation should be allowed to overshoot on the upside if it has been below target for a long time.

(2) Supply disruptions because of the pandemic and a more general process of de-globalization that seems likely to pervade the political debate.

In contrast to this, there are also good reasons why the outlook is not inflationary: (1) However much policy makers may wish it, stoking inflation via traditional channels might just be very hard to achieve.

(2) Unemployment will remain high and may never fall to the level of 2019 again, we think. So it is unlikely that there will be significant aggregate wage pressure. Without wage pressure, can inflation be sticky?

(3) In addition "everyone" said QE1,2…*N* would be inflationary, but it never happened. Why is this different?

(4) We are also going to be left with a large number of zombie companies, which may be a drag on inflation.

(5) Unfavorable demographics, pervasive deunionization, and tech advances are fundamentally deflationary. This has been in the backdrop for years and is no different now. This is hard to counter with either traditional monetary or fiscal tools.

But the main reason is political

We will work through these arguments, next. We think, on balance, there are enough reasons to make a case for a modest increase in inflation just because the size of the policy response is so huge compared to previous episodes. But the thing that definitively shifts the argument for us is our view that a more significant change is happening in the *political* economy. In this sense, the outlook for inflation is just one part of the broader narrative for markets, which is: get used to a permanently larger role for governments across all aspects of investing, be it in macro variables, the bargaining power of labor vs. corporates, or corporate governance, not to mention the increased weight of government because of the likelihood of taxes going up globally.

We have clearly seen a rapid movement of what is seen as acceptable policy in the space of just six months, with helicopter money and the unprecedented expansion of central bank balance sheets. As with many other areas of economics and investment, however, the pandemic really seems to have accelerated forces that were already in existence, which are more radical when it comes to the framework for the formation of policy.

On the one hand, maybe the policy shifts of 2020 can be understood as an extension of where we were prior to the pandemic. Central banks have indicated that they are seemingly willing to see inflation overshooting on the upside and have acted accordingly. The Fed has loosened the link between inflation and rates. If inflation has been below target for a long time then it will be allowed to rise above target so that an average level of 2% is maintained. However, the approach to that is explicitly left vague. As Powell said: "*In seeking to achieve inflation that averages 2 percent over time, we are not tying ourselves to a particular mathematical formula that defines the average.*"[1] But this is a statement made very much in the vocabulary of the *ancien regime*.

The charges that were laid against the policy regime pre-Covid-19 were clear enough. As has been discussed *ad nauseam* in the financial media, monetary policy via interest rate changes has mechanically been running out of ammunition. Successive rounds of QE have failed to generate sustained inflation and — worse — have contributed to a levering up of non-financial corporations and households, which have been relying on larger pools of debt (monetary policy is certainly not the only culprit here — a corporate governance structure that encouraged issuance of low-grade debt to buy back stock is also to blame). The other charge against the pre-pandemic policy framework is that not only did it fail to generate inflation, but it also contributed to inequality though price appreciation of financial assets. The chorus of central bankers saying that monetary policy cannot achieve its stated goals without a fiscal counterpart has grown as well. These charges would probably have meant that the regime of independent monetary policy as the sole tool to cushion the economy would probably have come to an end at some point anyway. The pandemic has just made this more urgent and more immediate.

If the post-GFC policy landscape was captured in one phrase it might well be the words of Theresa May, famously saying that there is "no magic money tree." Well, now it is plain to see that there is, in fact, a magic money tree, and we can apparently use it with abandonment (although we do not yet know its limits). Central bank balance sheet

[1] https://www.federalreserve.gov/newsevents/speech/powell20200827a.html

expansion and de facto helicopter money (albeit in theory temporary) in many ways sound a lot like the wishes of the MMT crowd have been met already. As this seeps into the political debate, we think it will be very hard to counter.

We do not think that full MMT is actually coming anytime soon. That would require a change in the policy infrastructure that allowed for automatic fiscal stabilizers such as government jobs guarantee schemes, thereby creating an ability to move up and down the floor for the price of labor for everyone, whether they were in employment or not, and also political acceptance that central banks can directly fund governments in advanced economies. That seems very far from where we are today, and to have the institutions in place, let alone the political acceptance, would seemingly require several election cycles.

However, even if we do not end up with MMT being implemented as *policy*, the genie is out of the bottle. Aside from being an explicit *policy* decision, MMT can also be seen as a possible *description* of how the economy functions. This distinction between MMT as policy vs. MMT as a descriptor is one that Kelton lays out in her recent book defending MMT.[2] It is in the descriptor role that we think it can form a larger part of the political debate within the US and Europe, whatever one thinks of it from an economic or political point of view. In fact, we think in the near term, MMT is going to be most influential and powerful when used as a descriptor. To be clear, we are not advocating it at all, but strongly suspect that it will be too tempting for many and, hence, influence the policy debate.

Voltaire famously once described the Holy Roman Empire as neither holy nor Roman nor, in fact, an empire.[3] In a similar vein, MMT has been described as not modern, not monetary, and not a theory.[4] The naysayers point out that issuers of currency have tried this route before, it is more fiscal than monetary, and cannot really be credited with being a theory (mind you, not much in finance counts on that front either). Quips aside, the main fear and main counter argument is that adoption of MMT would lead to hyperinflation that might be difficult to stop. Countries where this has been tried before have not been the issuer of the global reserve currency, so the implications are larger and global if the US adopts this route. Whether it counts as a theory or not, we simply do not have strong empirical evidence of where the limits lie, thus the fear of stoking too much inflation will likely prevent this from becoming adopted policy in the near term.

What does seem more likely in the near term is a further extension of what has happened recently, that is a path to negative real rates, perhaps with a commitment to keep them there and an explicit blending of fiscal and monetary policy. That is already a break from the orthodoxy of the last 30 years. But we think that elements of MMT will likely leak into the political discourse. This is not just a discussion about aggregate economic statistics after all. It is likely that it will be just as much about the distribution of outcomes as well. Here unemployment seems central. We think the rapid increase in unemployment of 2020 will bring forward job losses that would have occurred anyway in future years because of automation. If unemployment remains high, then increases in the minimum wage might not be the correct policy response to inequality; in fact, it could have adverse consequences.

[2] Kelton, S. (2020) *The Deficit Myth*, John Murray.
[3] *Essai sur les Moeurs et l'Espirit des Nations, Ixx*.
[4] For example, see interview with Lacy Hunt https://www.13d.com/kiril-sokoloff-series-on-real-vision-tv/5252020_will-there-be-hyperinflation-or-deflation/.

Thus, the other political debate that we think will grow in intensity is whether there should be some move toward UBI, in the context of helicopter money being a reality and MMT becoming more attractive.

Minimum wages and UBI

Even without steps to full MMT other steps to raise the price of labor do seem more likely in the US and Europe. Minimum wages are already common; Biden has said he would increase the minimum wage in the US were he elected. The assumption is that such a policy is inflationary, though a recent working paper for the Upjohn Institute for Employment Research by Daniel Macdonald and Eric Nilsson argues that the pass-through effect to inflation from minimum wage increases is lower than commonly documented in minimum wage research. The authors examined changes in restaurant food prices in the US during 1978-2015 and concluded that a 10% increase in minimum wage was associated with only a 0.36% rise in prices and that small minimum wage hikes did not lead to higher prices at all. However, they did note a clear relationship between large minimum wage hikes and a clear positive effect on output prices.[5]

Minimum wages do not put a floor under the price of all labor, however, as the minimum wage for someone without a job is zero. This would not be the case under UBI. This has been rapidly gaining attention and popularity in recent years. It is not immediately going to be adopted in a major developed economy, but we think the unemployment and inequality consequences of the current recession could well accelerate this debate. Thus, we would not be at all surprised if some form of UBI was adopted in a major economy at some point over the next decade.

So far a number of pilot UBI projects have been tried in countries such as Namibia, Kenya, Finland, and Iran, as well as applying in special circumstances in Alaska. However, so far none of the projects have been large enough in scale and long enough in duration to draw universal and definitive conclusions about their effect on unemployment levels and inflation. Crucially, the impact on inflation would depend on the method used to fund UBI. If UBI is funded by issuing more treasury bonds, it would add to the already high budget deficit and further add to the already significant government debt load, increasing the temptation to let inflation run higher for longer to inflate it away. And unless all the extra income is saved in anticipation of higher taxes in future, it should have a strong positive effect on consumption and a positive impact on prices. However, if it is funded in part or in full by an introduction of new taxes, such as a VAT tax or by increasing the marginal top income tax rates, the overall effect on inflation might be muted.

Government debt has been key for delegating pension risk

From the point of view of investors, the debate about deficits mainly matters because of what it means for the future path of inflation. However, there is another angle when it comes to investing. The whole delegation of retirement risk to individuals is built on the assumption that there are plentiful assets that can be bought that maintain purchasing power at a given level of risk. Seen this way, the increased indebtedness of governments in recent decades

[5] MacDonald, Daniel and Eric Nilsson. 2016. "The Effects of Increasing the Minimum Wage on Prices: Analyzing the Incidence of Policy Design and Context" Upjohn Institute Working Paper 16-260. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research. https://doi.org/10.17848/wp16-260

has been a key part of allowing saving for retirement via assets that had relatively low risk, not least as the returns on such bonds have been strong even as the supply of them has inexorably increased.

Assets that are "risk free" are also required for the creation of annuity products that can be purchased upon retirement, when retirees trade in their accrued savings. Demand for annuities has risen as a greater proportion of workers are moved to defined contribution (DC) schemes, and this demand looks set to increase further as cohorts of workers who have mainly used DC plans retire.[6] A fear in recent years was that the supply of long-term debt might be insufficient to form a base for such annuities. That is less likely to be a problem now. However, the shift in yields implies that the cost of buying a given annuity is now much higher.

In fact, one aspect of Kelton's new book that struck us was that she explicitly switches mode for a moment to talk about the role of US Treasury bonds as assets for investment as opposed to vehicles for funding the government. Kelton[7] makes the point that, as a staffer on the US Senate Budget Committee, she asked colleagues if they found a magic wand that could eliminate the entire national debt would they use it? The answer invariably was "yes." However, when the question was posed as "would you wave a wand to rid the world of US Treasuries?," people were less keen to wave the wand. This could become an increasingly relevant issue. In the age of austerity, the political debate about how governments are funded was mainly focused on the question of how much debt was acceptable. However, the same governments also wanted to devolve retirement risk to individuals. If that cannot be maintained, then the cost of retirement as well would be at risk of landing on government balance sheets. This implies that a really joined-up approach to policy would explicitly link the new, sharply increased projections for government deficits with the needs of retirees — both in terms of the range of assets that governments choose to issue and in terms of the regulations covering the risk level of pension funds and the requirement, or otherwise, to purchase annuities upon retirement.

Another attack on MMT would be that to print money and engineer inflation at a significantly higher rate would be a decisive shift in favor of creditors and away from savers. This would no doubt be another angle in the political debate around any quasi-MMT policies. Though the move in rates has already tilted policy definitively in that direction, it is also already explicitly a subject of political debate, e.g., in Germany. Any further loosening of fiscal policy seems likely to push retirement investing even further away from conventional government debt and into more "risky" assets. We think the political debate around the fiscal options from here, from merely extending the current system to versions of MMT need to take into account the availability and also the role of such debt in the approach to saving for retirement.

If the outlook is indeed inflationary, it prompts major questions for the appropriate allocation of portfolios. Investors will inevitably reach back to historical periods of inflation such as the 1970s and other times as the basis for a "play book" of what might happen. However, the policy environment has likely shifted. Crucially, this means an increase in

[6] Cannon and Tonks (2008) *Annuity Markets* OUP.
[7] Kelton, S (2020) *The Deficit Myth*, John Murray.

inflation might not lead to a steepening of the yield curve and an increase in real rates. At one level this can be understood within the framework of monetary policy of recent decades, just with the proviso that central banks are comfortable with inflation overshoots. At the other end of the scale, the same state of affairs could be understood in the language of MMT of the policy levels and goals having changed. Either way, inflation might not be followed by higher real rates. We discuss at the end of this chapter, the impact that all this has on portfolios.

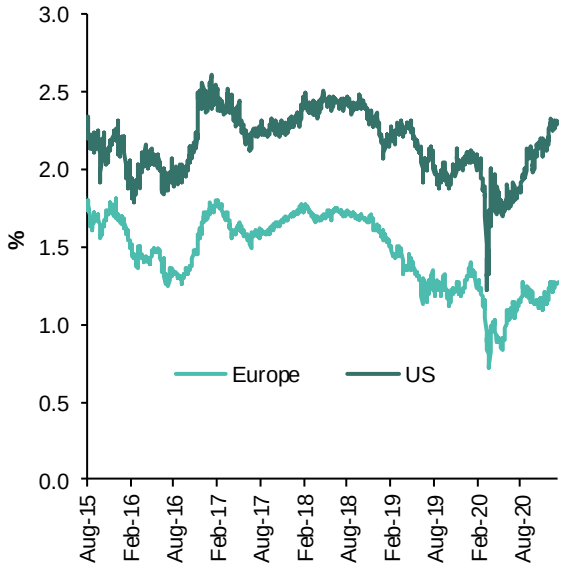
Recent move up in inflation expectations

Inflation expectations have moved up significantly in recent months. In fact, both measures such as 10-year inflation breakevens and 5y5y inflation swaps have moved up in a straight line since March (see Exhibit 10 and Exhibit 11). However, these are still only slightly above the level of 2019; so, when we say the outlook is inflationary, it is not this recent level re-attained by inflation measures that we mean. We have yet to see a definitive move above the levels of recent years; we think that move is still to come. Right now we are still in a deflationary shock, given the uncertain impact of the recession. But we think these measures of forward inflation expectations should continue to rise.

EXHIBIT 10: **US 10-year breakeven rate**

Source: Bloomberg and Bernstein analysis

EXHIBIT 11: **5y5y inflation swaps (US and Europe)**

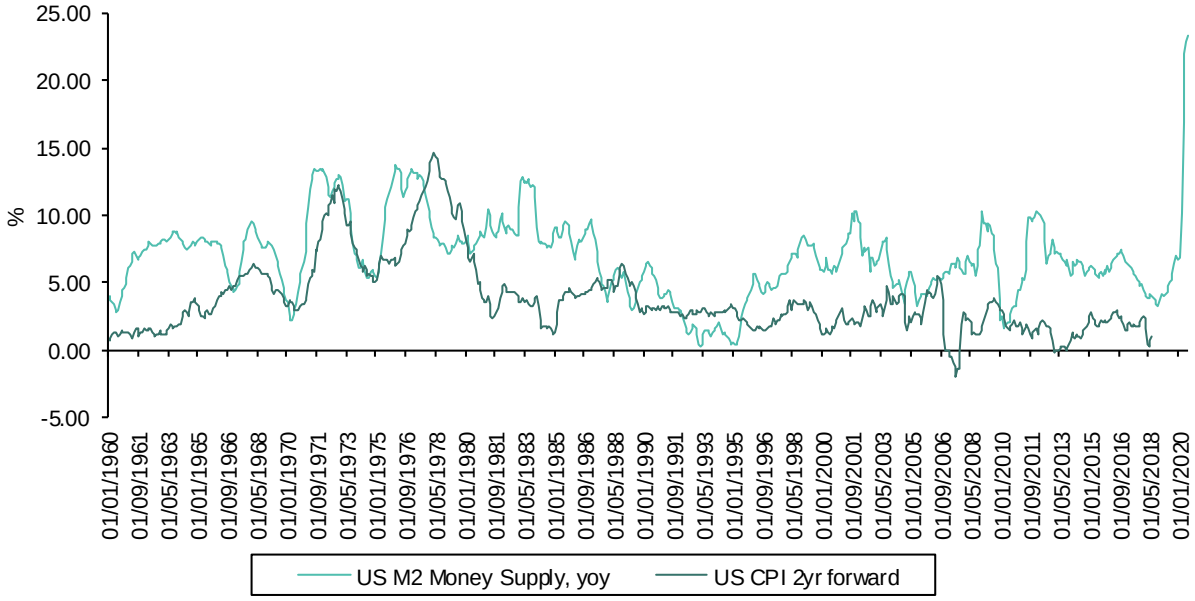


Source: Bloomberg and Bernstein analysis

Policy response and money supply

Perhaps the most obvious reason for claiming that we face an inflationary outlook is the scale of the policy response and in particular the impact this has had on money supply. Exhibit 12 shows changes in money supply (M2) and two-year forward inflation. The link is far from perfect, but it is over a one-to-two-year forward horizon that changes in money supply have tended to influence inflation, and it is over that horizon that central banks have traditionally assumed that the transmission mechanism from interest rate changes takes its full effect.

EXHIBIT 12: **US inflation vs. money supply**

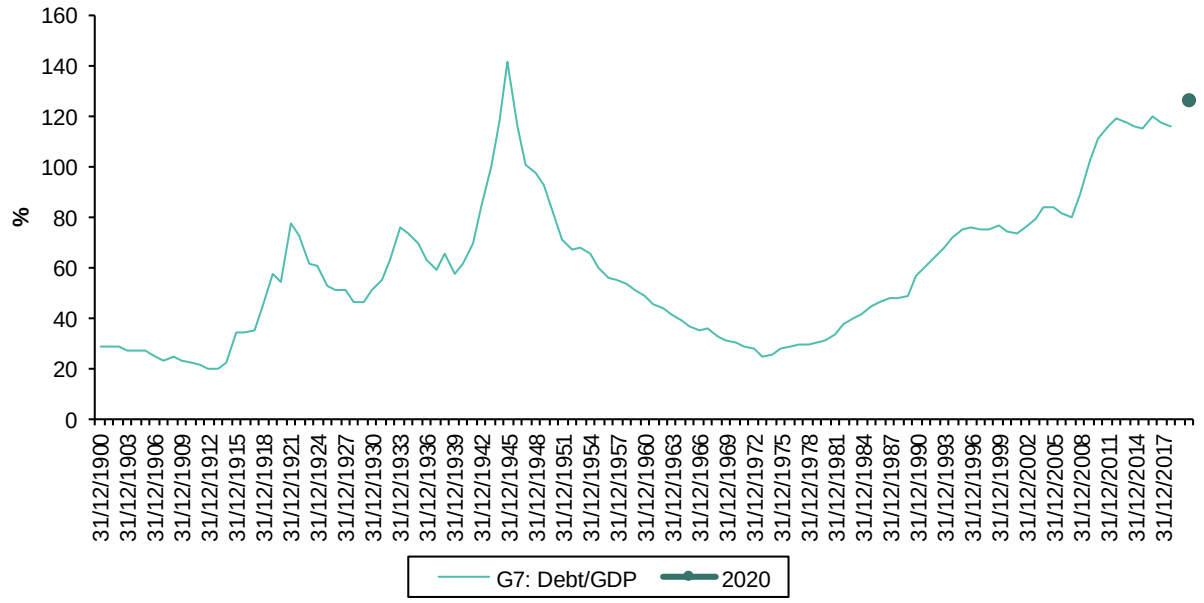


Source: Datastream and Bernstein analysis

Governments need to monetize debt

Exhibit 13 shows that the ratio of government debt/GDP for OECD countries is now getting to a level only seen before at the end of WWII. However, back then there were ample opportunities to grow out of it. Demographics were much more favorable. Moreover, the global capital stock had been in part destroyed by the war and needed to be rebuilt. It is far harder to make a case that we can grow out of the debt this time round; thus, governments are likely be tempted to inflate their way out of it. Whether this is explicit policy or not, it will likely bias policy in favor of higher inflation for years to come.

EXHIBIT 13: **G7 debt to GDP**



Source: GFD and Bernstein analysis

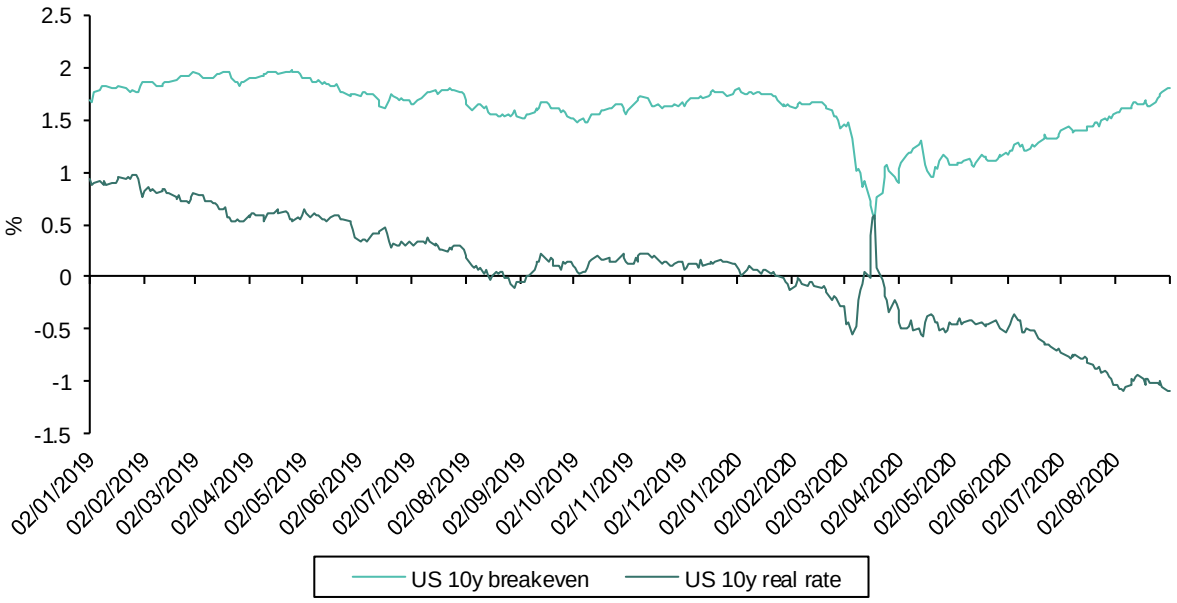
Central banks tolerant of inflation overshoots

At the Jackson Hole seminar at the end of August 2020, Chairman Powell laid out a regime for policy that is now much more tolerant of inflation overshooting on the upside. Meanwhile, at the ECB, Christine Lagarde has launched a strategic review of the bank's inflation targeting policy.[8] After the previous such review, the inflation target was revised from a 0-2% range to a narrower range of below but close to 2%. It is expected that this review will see the ECB revise the inflation target up to 2%. However, the conclusion of the review has been postponed to mid-2021 due to the Covid-19 pandemic.

Bond yields have moved higher very recently, but all of this is due to inflation breakevens moving up, not because of shifts in real yields (see Exhibit 14). We would also point to the yield curve, which has maintained a very flat structure at all maturities in recent months.

[8] https://www.ft.com/content/63404e0e-3dcc-11ea-a01a-bae547046735

EXHIBIT 14: **US real yields and 10-year breakevens**



Source: Bloomberg and Bernstein analysis

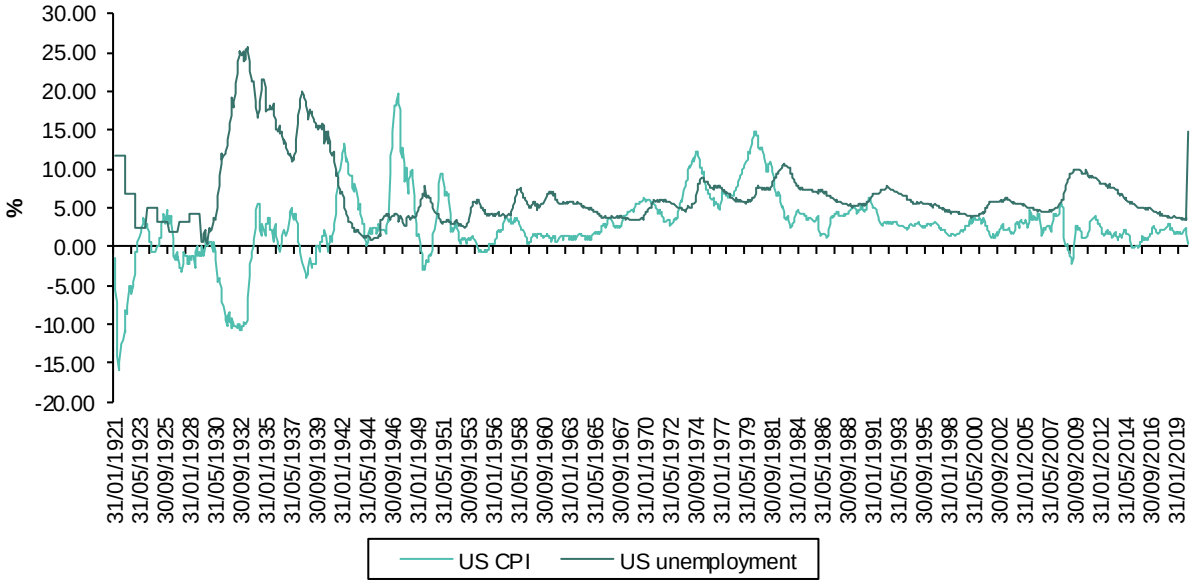
Unemployment

However, there are powerful forces to suggest that the outlook might not be inflationary as well. The one we think carries the most weight is unemployment. We think it is possible that the low levels of unemployment seen in 2019 mark a historical minimum, which is not likely to be seen again. The pandemic, size of the recession, shift to ecommerce, and the ongoing need for distancing likely brings forward an automation of jobs that would have happened gradually in coming years.

If we do not revisit the low levels of unemployment seen in 2019, then it is hard to imagine there being any wage pressure in aggregate. We also need to bear in mind that there was a remarkable absence of wage inflation even when unemployment was so low in recent years.

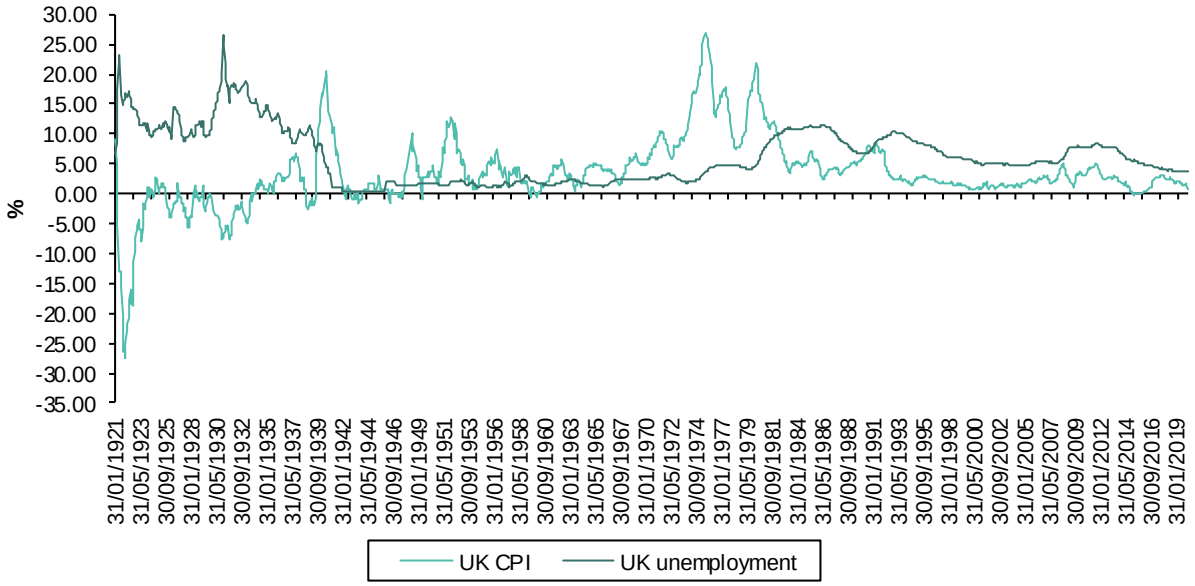
Wage inflation is important as it is shifts in wages that tend to promote a more "sticky" influence on prices than shifts in prices of commodities or input costs. There have been episodes when both inflation and unemployment were elevated — e.g., in the 1970s, but other periods of high unemployment in the 1930s and the GFC were periods of low or negative inflation (see Exhibit 15 and Exhibit 16).

EXHIBIT 15: **US unemployment vs. CPI**



Source: GFD and Bernstein analysis

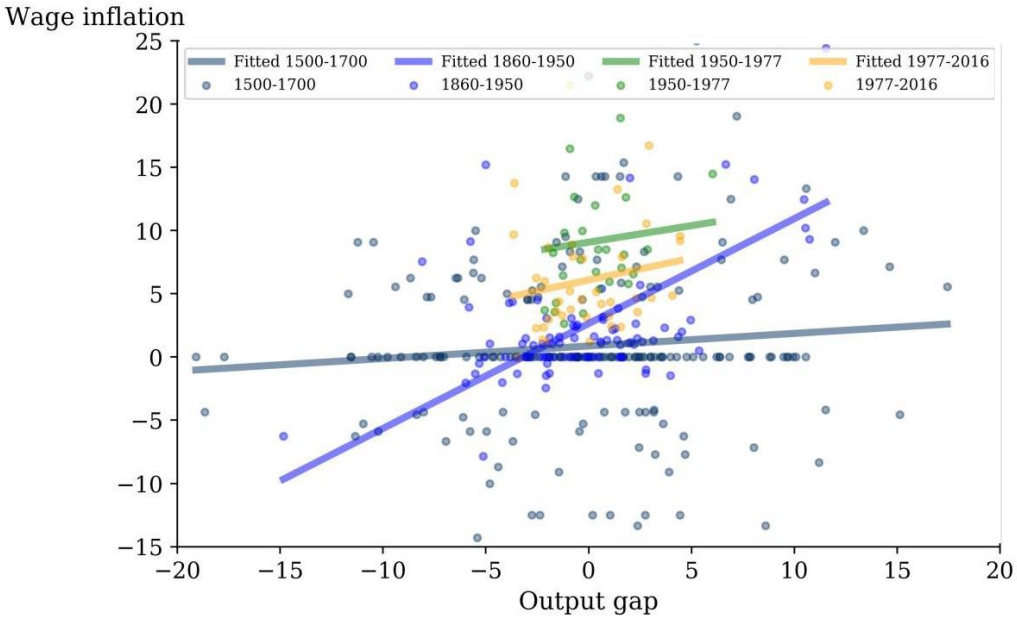
EXHIBIT 16: **UK unemployment vs. CPI**



Source: GFD and Bernstein analysis

The debate about the link between unemployment and inflation has raged for years. The Bank of England has made the point that, using the UK as an example, there is evidence that the link was very strong during the Industrial Revolution and through to the late 1970s, but that the link has been becoming progressively weaker since. Possible reasons for this are deunionization and a lessening of the bargaining power of labor as a function of unemployment (see Exhibit 17).

EXHIBIT 17: **500 years of the Phillips curve**



Source: Bank of England

Zombies and inflation

From a policy perspective, it might be desirable in the short term to allow companies to remain as going concerns even if in normal times they would have failed. Governments will do whatever they can to limit increases in unemployment. This is part of the theme of placing the capital-raising function of markets above their price-discovery function, as part of a short-term fix. This can either come through keeping costs of credit low or even loosening requirements for when companies are obliged to declare bankruptcy. The former is the explicit policy of central banks in the US and Europe, while the latter has also been adopted in countries such as Germany. The German COVID-19 Mitigation Act provided for a temporary suspension of the obligation to file for insolvency until September 30, 2020. Technically insolvent companies have been granted protections to resume or maintain business operations.

This leaves the high likelihood that economies will see a higher prevalence of "zombie" companies for some years to come; there is evidence that this can depress inflation. Acharya et al. examined the effects of a sharp rise in the share of zombie companies in Europe during 2012-16. They found that credit that was extended to zombie companies was associated with a decrease in firm defaults and entries, firm mark-ups, and product prices. According to their estimates, without a rise in zombie credit during this period European annual inflation would have been 0.45 percentage points higher[9] (see Exhibit 18).

[9] Acharya, V. V. , Crosignani, M., Eisert, T., & Eufinger, C. (2020). Zombie Credit and (Dis-) Inflation: Evidence from Europe, NBER Working Paper Series, National Bureau of Economic Research, Inc.

EXHIBIT 18: **Zombie credit and inflation**

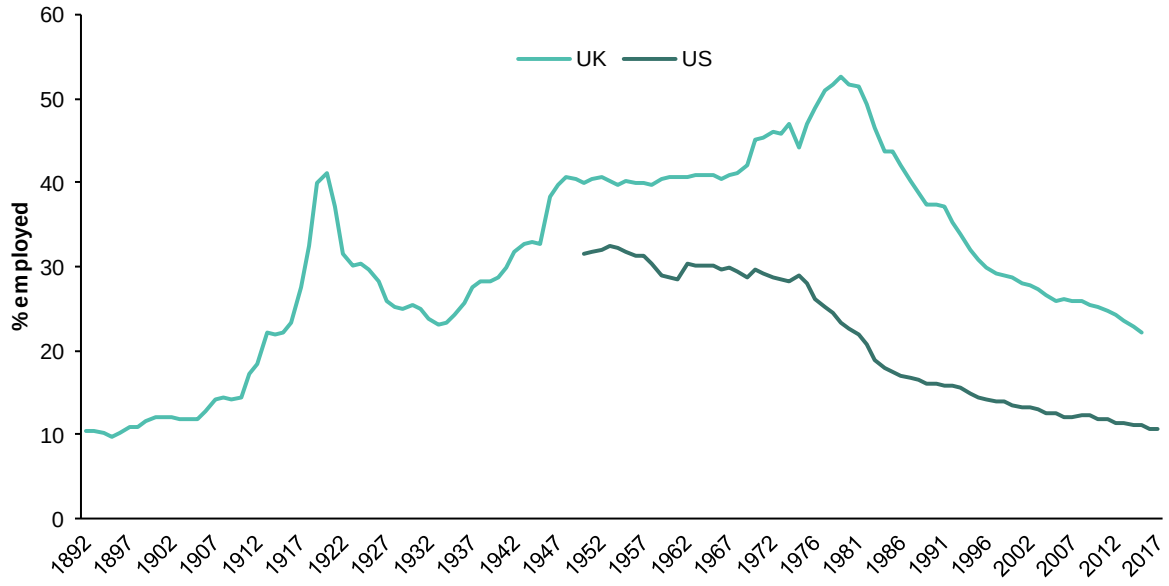
Note: Shows the year-over-year (YOY) growth of the Consumer Price Index (CPI) on the left axis and the asset-weighted share of zombie firms on the right axis in our sample. A firm is classified as zombie if it is low-quality (i.e., above median leverage and below median interest coverage ratio) and receives subsidized credit (interest expenses/debt smaller than that of the highest quality firms in a given year).

Source: Acharya, V. V. , Crosignani, M., Eisert, T., & Eufinger, C. (2020). Zombie Credit and (Dis-) Inflation: Evidence from Europe. NBER Working Paper Series.

Tech, demographics, and deunionization

Meanwhile, in the background, the deflationary forces that have placed downward pressure on inflation for at least a decade remain in place. As we alluded to in the discussion of the Phillips curve, deunionization has reduced the bargaining power of labor. Unionization rates have fallen to levels last seen more than a century ago, and the advance of the gig economy has further eroded worker bargaining power (see Exhibit 19).

EXHIBIT 19: **Unionization rate in the UK and the US**



Source: Datastream; Bureau of Labor Statistics (BLS); Thomas, R. and Dimsdale, N. (2016) "Three Centuries of Data - Version 3.0"; Bank of England; and Bernstein analysis

SAVINGS, VELOCITY, INFLATION, AND PENSION INVESTING

OVERVIEW

- The velocity of money is likely to decline post Covid-19. Potentially, this makes it harder to generate inflation by requiring ever larger increases in money supply. We still think the policy response will be inflationary, but it puts extra emphasis on the importance of fiscal measures and, hence, the *political* nature of generating inflation.
- This chapter explores how demand for saving, the velocity of money, funding retirement, and inflation are intimately related and what this means for investors and policymakers.
- 2020 saw a record increase in the savings rate. Some of that is temporary, but we argue there will be a sustained and significant increase in the savings rate compared to the 2019 base level, because of the likelihood of lower real returns from retirement savings products in future.
- If authorities are successful at generating inflation, then exposure to real assets becomes a larger part of the natural asset allocation mix of this increased saving. We show that shorn of all the financial engineering of buybacks, equities can count as real assets. Younger savers hold increasing amounts of that exposure in target date funds, but asset managers may wish to evolve the structure of such vehicles.
- But if real returns are low and an increase in savings creates problems by lowering velocity and consumption, does it make sense to try to fund pensions at all? If one started the system from scratch maybe not, but the demographic profile overlaid with the inter-generational wealth distribution would make it very unlikely that the current system changes.
- This creates opportunities for asset managers in designing products to meet what may be an increased demand for inflation-protected retirement saving. Meanwhile, for investment decision making, it also means we should expect a more active political fiscal policy acting as a force in markets.
- The larger equity exposure of the increased savings pool means the stewardship role of active managers increases. This is an unconventional route, pointing to the role of ESG in generating growth in the economy. The issues raised in this chapter also point to the need for a more joined-up approach to the issuance of government debt, not only seeing it as a vehicle to fund expenditure, but also as creating a flow of assets that are needed to keep a funded retirement system alive.

DETAILS

A question has been asked several times of late in discussions with clients: will a legacy of Covid-19 be a decline in the velocity of money and if yes, does that make it even harder for

policymakers to raise inflation? We think the policy response to Covid-19 will end up being inflationary (once we are out of the immediate deflationary shock), but we recognize there are very strong forces aligned in the other direction. It is partly for this reason that we think policymakers will likely be inclined to keep the yield curve flat even as inflation rises.

In our research discussing the case for and against inflation,[10] we identified the main new force against inflation as being unemployment. Our claim is that we may never again see the low level of unemployment of 2019, unless there is a massive political change to put employment above other goals. In the absence of wage inflation, any inflation that does occur might not be "sticky." Other deflationary forces are demographics and technology/ automation, which were major reasons why all the QE1,2…N programs failed to stoke inflation. A decline in the velocity of money could, in theory, be an extra reason why policy makers might struggle to create inflation.

Ultimately, we think this debate comes down to politics, not macroeconomics. It has suddenly become acceptable for policymakers to use fiscal measures that are much more directly inflationary (handing out cash to people via helicopter money or furlough schemes), to live with higher deficits, and to increase the money supply in ways not imagined before. The bottom line is that there will likely be a political force that simply needs inflation to manage the overall debt level. This is also intimately linked to the bigger question of how long-term retirement funding works in the post-Covid-19 world.

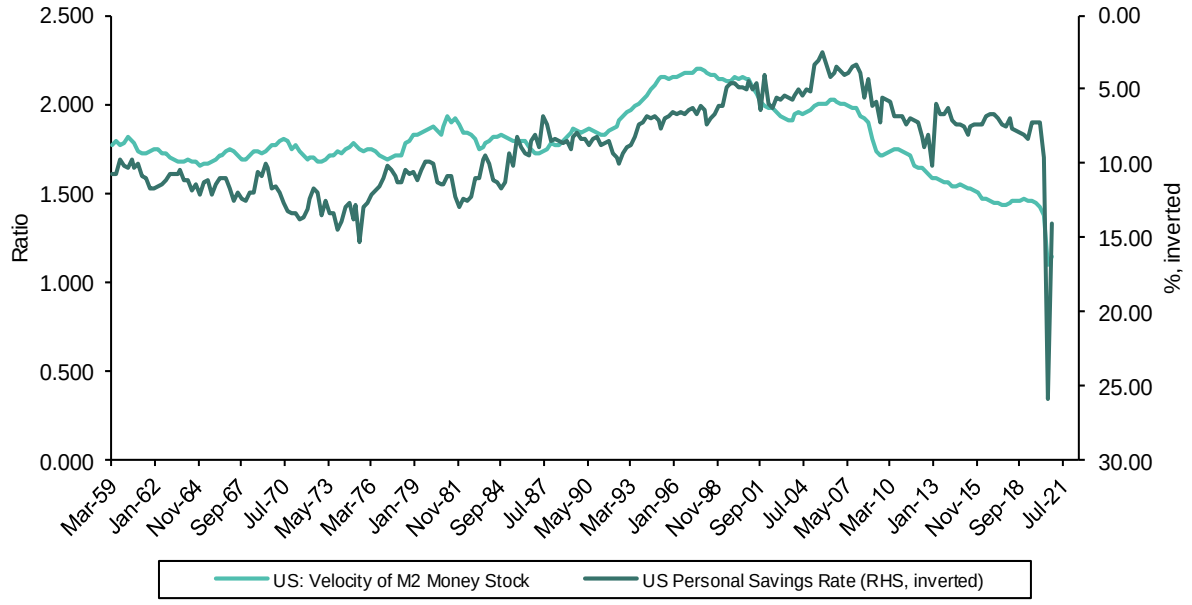
Savings and velocity of money

2020 has already seen a massive increase in the savings rate, as a reflection of greater risk aversion leading households to save, but also bluntly being the result of the constraints on consumption from lockdowns. While the 2020 savings rate is almost certainly a short-term aberration, we think the prognosis for future years is for the savings rate to settle at a significantly higher level than the pre-Covid-19 base level.

Exhibit 20 shows the savings rate, inverted on the right-hand axis, plotted with the velocity of money. Increases in the savings rate are associated with a decline in the velocity of money, as it is not spent on consuming goods and services.

[10] Portfolio Strategy: Inflation, investing and the coming of MMT

EXHIBIT 20: **US M2 velocity of money and personal savings rate**



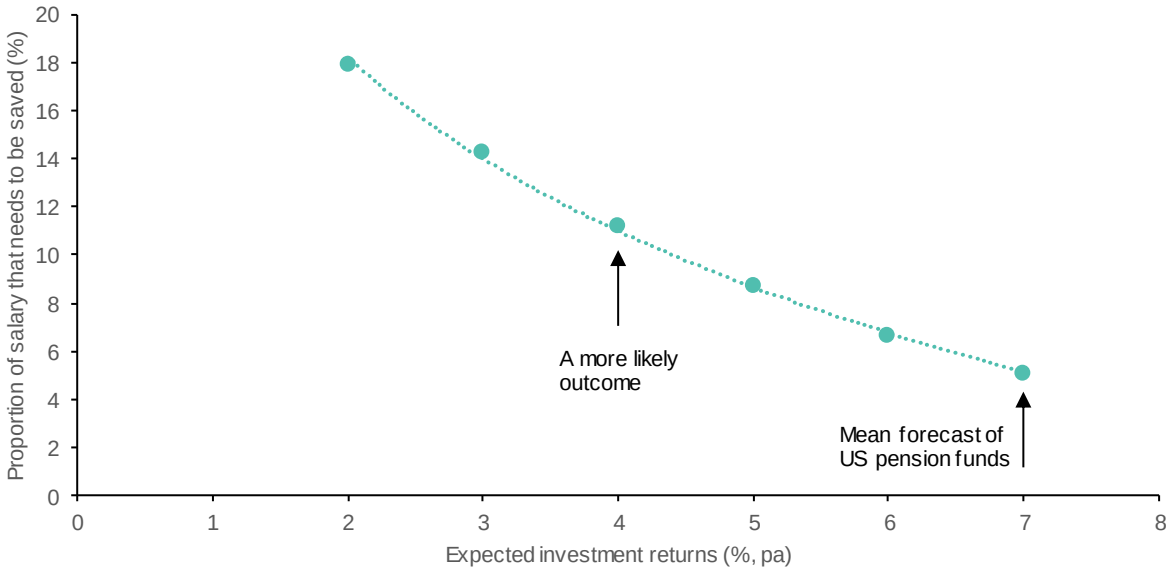
Source: FRED, Datastream, and Bernstein analysis

Why might the savings rate increase compared to the 2019 base level? We think high starting valuations will depress the future returns of most asset classes. This is not a function of Covid-19, but a function of the run-up in the prices of financial assets for years.[11] This implies a need for increased savings for retirement.

Exhibit 21 shows a simple illustrative model that links the proportion of salary saved as a function of assumed investment returns. We assume someone starts work aged 20 earning $25K p.a. and experiences salary growth of 2% p.a. and retires aged 65. Upon retirement, we assume they purchase an annuity that pays out $35K every year and that they die aged 90. We assume they pay into a savings product each year; this allows a simple analysis of the scale of the change required to the proportion of salary saved, as we vary the assumed investment return. Thus, if the expected returns fall from 7% to a more likely 4%, the savings rate has to rise from 5% to 11% to maintain the same level of income in retirement from savings.

[11] Global Quantitative Strategy: The Strategic Investment Outlook - Blame it on the Boogie

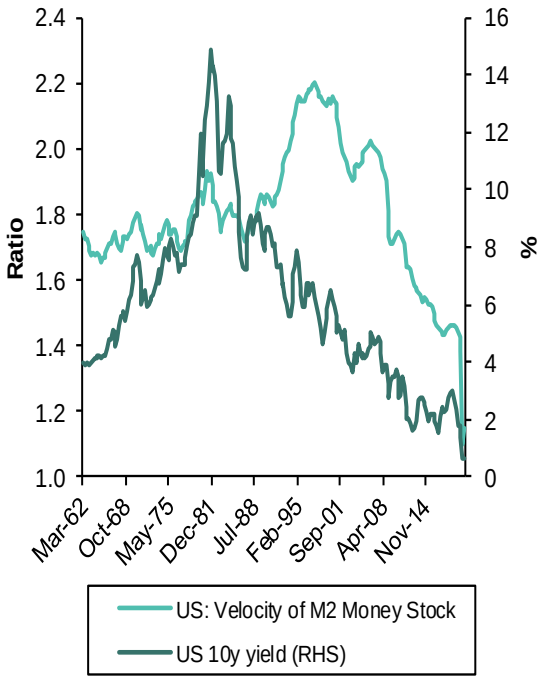
EXHIBIT 21: **Proportion of salary that needs to be saved vs. investment returns**



Source: Datastream and Bernstein analysis

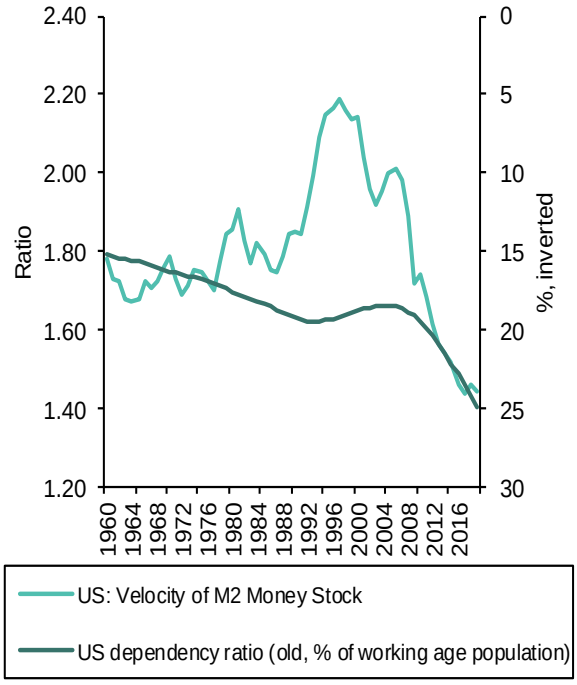
The velocity of money has been falling for 20 years. There has been plenty of discussion of what the forces are that have driven this. Exhibit 22 and Exhibit 23 show that in addition to the link to savings, other possible explanations for declining velocity are a higher dependency ratio (the share of retired population compared with the total workforce) and lower bond yields. Neither of these show much prospect of being a potential force for improvement in this regard.

EXHIBIT 22: **US M2 money velocity vs. 10-year bond yield**



Source: FRED, Datastream, and Bernstein analysis

EXHIBIT 23: **US M2 money velocity vs. dependency ratio**



Source: FRED, Datastream, and Bernstein analysis

There is endless debate about the drivers of inflation. The new era we are evolving toward in the wake of the pandemic will likely see this debate elevated to even higher prominence. We do not seek to advocate any particular approach here, but at the very least, the evolution of the policy response will likely take into account and be influenced by the major schools of thought on this. Among these, the quantity theory of money places the velocity of money at the core of this issue.

Fisher's equation of exchange states that:

$MV=PT$

Where M is the money supply, V is the velocity of money, P is the price level, and T is the number of transactions. We note that empirically this relationship has not fared well and the link between the money supply and inflation, if there is one, has only been apparent for certain relatively short periods, such as possibly in the 1930-40s and again in the 1970s. Nevertheless, if this relationship has any influence on policy making at a *theoretical* level, it implies that for any given level of desired inflation, that as the velocity of money falls, ever larger quantities of money need to be created.

Over the last 10 years, the savings rate has averaged 7.5%. The narrative of greater savings implies a savings rate increasing to the low- to mid-teens rate. Taking the simple relationship between savings rate and velocity, i.e., not accounting for other variables, implies a velocity of money at the very least at the lower end of its historical range.

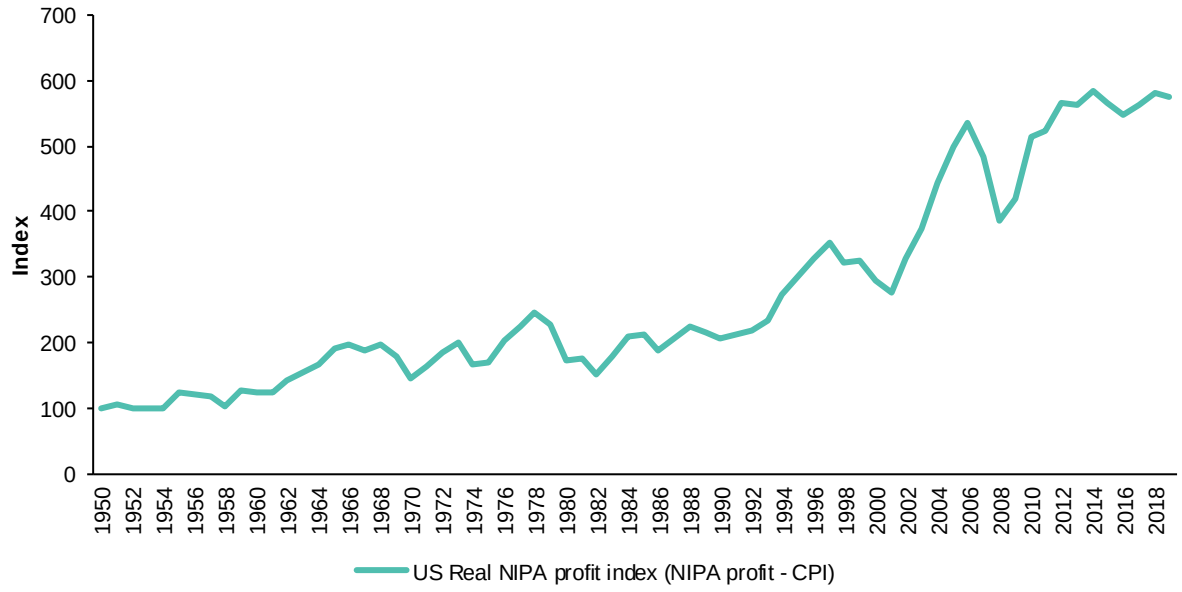
The path of policy evolution appears to be going in a somewhat different direction, with a much greater emphasis on fiscal policy. 2020 has seen rapid pursuit of much more direct fiscal measures, e.g., helicopter money, direct handouts of cash to businesses, furlough schemes, and increases in unemployment aid, all of which are plausibly much more directly inflationary for a series such as CPI than creating money and using it to buy financial assets. That is presumably where the emphasis has to fall in future and, indeed, where the political debate seems to be heading. This implies that we no longer have a situation where there is a hybrid of monetary and fiscal policy. The role of the central banks becomes then more about keeping the cost of debt manageable. This is an environment where the steering of the economy over the business cycle is more political and less technocratic.

What does this mean for how savings are allocated?

If savings increase, what form do they take? If there is even moderately more inflation, then savers will be more focused on preserving purchasing power and, hence, a need to hold real assets. We think equities become an even larger share of asset allocation in such an environment. This includes both public and private equity. Given the stock of listed equity has been shrinking for the past decade (until the last six months, when issuance again exceeded buybacks) and given the propensity for younger companies to avoid or delay listing, the size of private holdings should be larger than they were. However, that does not mean that a greater allocation to private equity funds makes sense, as we recently discussed in Portfolio Strategy: Small caps and election risk. Alongside equity, the allocation to infrastructure and real estate would be other usual places to seek real asset exposure. However, real estate suffers from two strategic problems. There is the fundamental problem of its exposure to shopping malls, central city office space, and other assets that may see a long-term hit to value post the pandemic. Also the correlation of REITS with equities increases with inflation, so if there is already a large equity allocation then their utility to overall portfolio value is moot (Portfolio Strategy: Multi asset portfolios in the crisis and the outlook for diversification if inflation rises).

Can public equities count as a real asset? We think they can, though they have to be shorn of the mass financial engineering of the last decade when companies have been rewarded for issuing low-grade debt and buying back their stock. Equities do count as a real asset as they entitle one to profits that grow together with the real growth in the economy over time. However, to get a true sense of real earnings growth it needs to be adjusted for buybacks that reduce the share count and inflate earnings per share but add nothing to the company's ability to generate profit. In Exhibit 24, we show the total corporate profits as calculated by the BEA in National Income and Product Accounts (NIPA). We have deflated the profit growth by CPI and converted it to an index. Since the1950s, real US corporate profits ex buybacks have grown by 2.6% p.a. — not very large but a positive premium nonetheless.

EXHIBIT 24: **Equities are a real asset: US corporate profit growth in real terms**



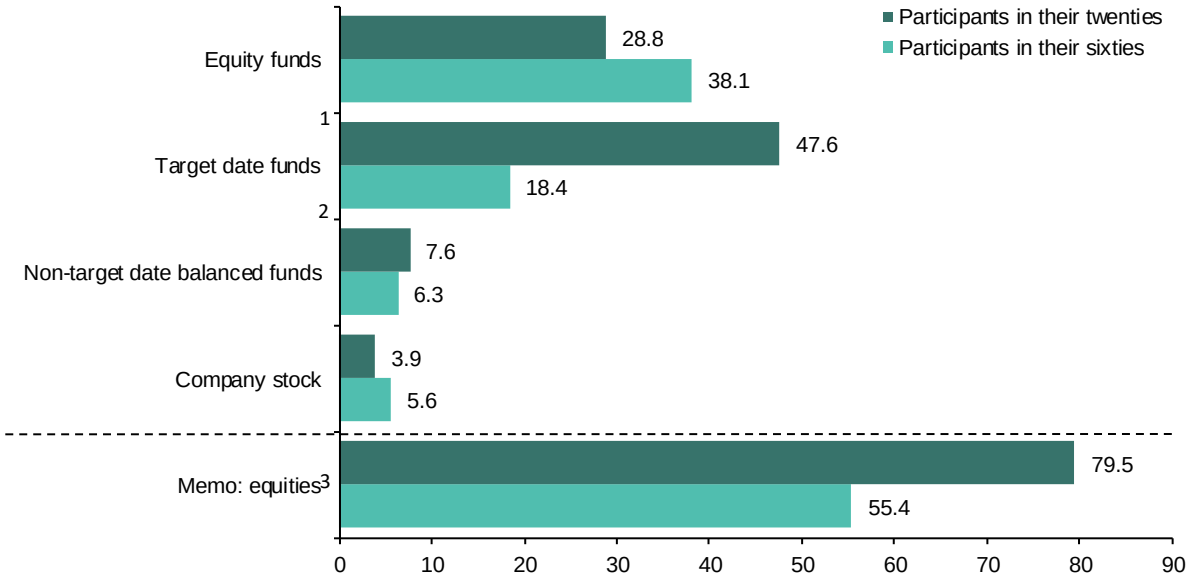
Note: NIPA profits deflated by CPI

Source: Datastream, BEA, and Bernstein analysis

The allocation to cash and long duration in fixed income is likely to be low.[12] Younger savers already have a high equity weighting — as they should — though much of this is held via target date structures rather than direct equity. We think, if anything, the equity allocation should rise even further. As we have written in recent research, we believe the overall structure of target date funds is very sound, but the inputs may need to evolve to include factors and other real-asset exposure. Moreover, such saving will have to recognize that many people will need to work much longer and, so, the assumption will be that the equity weightings should likely remain significant even after the notional retirement date is reached (see Exhibit 25).

[12] Portfolio Strategy: Duration in equities good, duration in bonds bad

EXHIBIT 25: **Asset allocation with age: average 401(k) account composition**



Note: (1) A target date fund typically rebalances its portfolio to become less focused on growth and more focused on income as it approaches and passes the target date of the fund, which is usually included in the fund name.
(2) The Investment Company Institute classifies balanced funds as hybrid in its data.
(3) Equities include equity funds, company stock, and the equity portion of balanced funds.
Funds include mutual funds, bank collective trusts, life insurance separate accounts, and any pooled investment product primarily invested in the security indicated. Percentages are dollar-weighted averages.

Source: Tabulations from EBR/ICI Participant-Directed Retirement Plan Data Collection Project (see ICI Research Perspective, "401(k) Plan Asset Allocation, Account Balances, and Loans); and Bernstein analysis

Should pensions even be funded?

Usually reports about asset allocation or about the asset management industry stop at this point in the narrative. But all this seems to us to beg a bigger question. Should we even try to fund pensions?

As a thought experiment , if we were to start from a blank slate and with a starting position of negative real rates and a slight path upward for inflation, and in addition to that, starting valuations on the main financial asset classes that are at multi century high levels, then how plausible is it that savings can realistically generate enough return to cover retirement? As a related question for public policy, how much of this risk can acceptably be offloaded to individuals? 401(k) plans came into existence right at the end of the 1970s in time for (and possibly not unrelated to!) the beginning of the biggest 40-year bull market in history. If the main cheaply accessible financial assets struggled to keep pace with inflation, would such an approach still be viable?

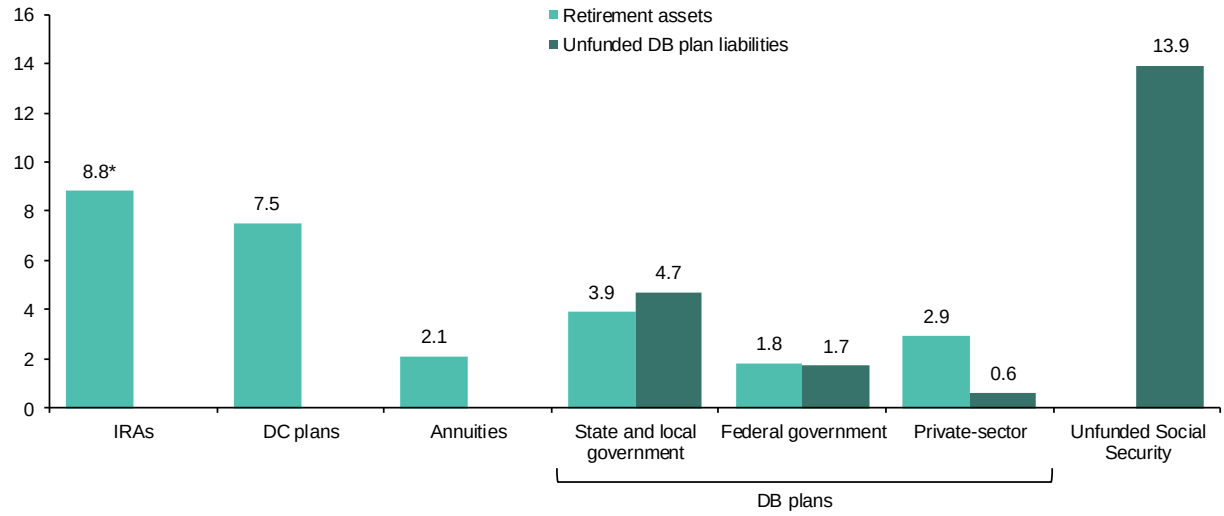
Suppose we had a crystal ball that told us that returns from an 80:20 (as the returns from 60:40 would be too horrible to countenance) type retirement account were going to be 1% real p.a. for the next decade, would society go for that as a retirement option? OK, the crystal ball might be too pessimistic, as policy can always over-ride valuations for a surprisingly long time.[13] The alternative would be not to bother to try to save for pensions

[13] Portfolio Strategy: S&P 4000 or S&P 8000? Our strategists disagree

and let future taxpayers pick up the bill. The extent to which these obligations are funded or not varies enormously by country.

In Exhibit 26, we show for the US the scale of assets in DC plans and IRAs, where there is no explicit liability to fund — just the need to grow in real terms — and the asset pools designed to match defined liabilities. However, these two segments alone are only part of the retirement picture. In addition, there is Social Security, which is unfunded. The present value of this unfunded obligation out to 2093 is US$14Tn.[14]

EXHIBIT 26: **Total US retirement assets and unfunded defined benefit plan liabilities: trillions of dollars, year-end 2018**



* Data are estimated

Source: Investment Company Institute and Federal Reserve Board (data and estimates) (see Investment Company Institute "The US Retirement Market, Fourth Quarter 2018"); ICI; ssa.gov.; and Bernstein analysis

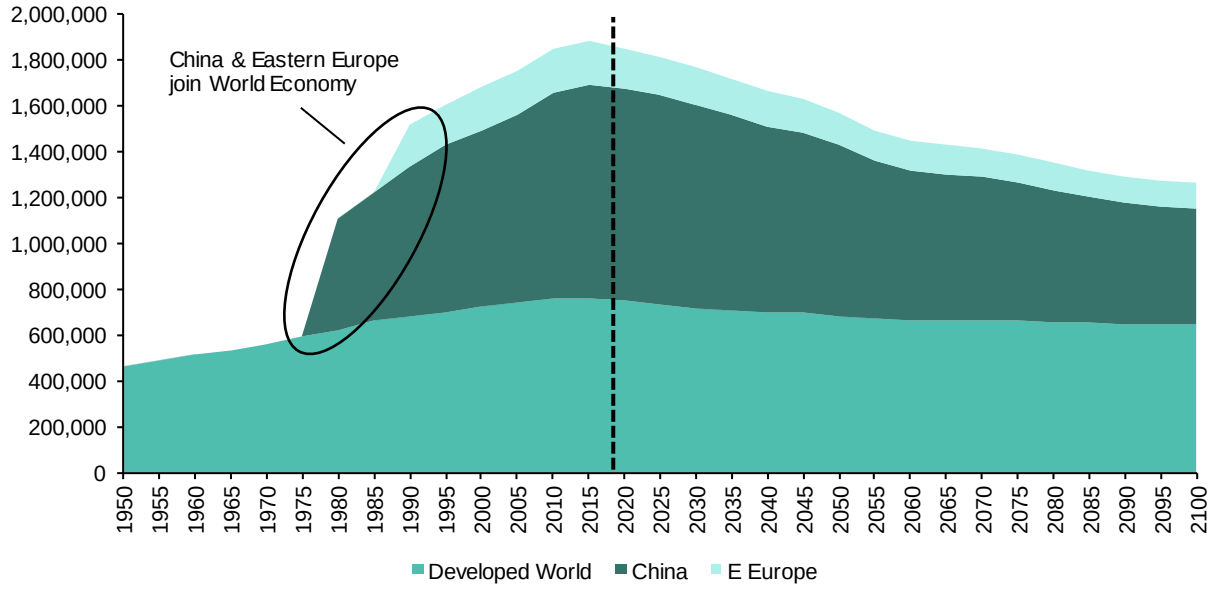
Governments will be very keen to stop a greater share of the retirement obligations falling back on the public sector balance sheet. Therefore, they will be incentivized to make sure asset managers and pension plans between them are indeed able to cover this. In time, we think this pressure could be strong enough to cause regulatory change for pension investing, e.g., with regard to liquidity requirements and the way risk is measured.

There are obvious hurdles to trying to shift this burden onto future taxpayers. The main one is demographics, with the shape of the age cohort chart showing relatively fewer workers to pay for retirees. Using UN population forecasts, the working population of the developed world + China + former Soviet countries taken together is expected to fall from around 1.9 billion today to 1.6 billion over the next 30 years (a 17% fall) and 1.3 billion by 2100 (a 33% fall) (see Exhibit 27). The reduction of the global working population from the expected aging of the population over the next 30 years will effectively remove 30% of the extra

[14] https://www.ssa.gov/OACT/tr/2019/VI_F_infinite.html#1000194

people who joined the workforce over the last 30 years as a result of China and the former Soviet Bloc being admitted to the global economy.

EXHIBIT 27: **The decline in working population from demographic changes over the next 30 years will remove 30% of the extra workers who joined the global economy from China and the Soviet Bloc**



Note: Size of population in regions shown aged 20-65

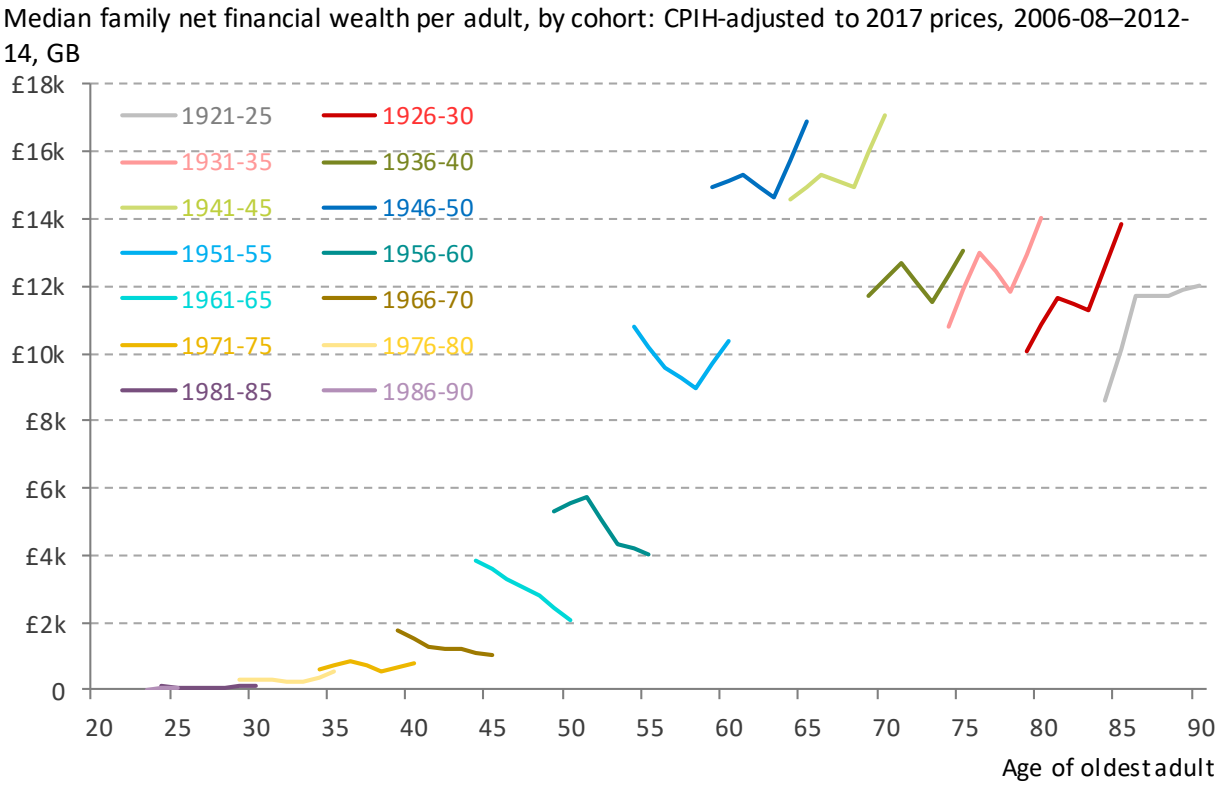
Source: UN Population Division and Bernstein analysis

The second problem is the inter-generational wealth distribution in most advanced economies. Even pre-Covid-19, each age cohort is now relatively poorer than the one before it, adjusted for age. Arguably, with the long-run impact of unemployment post Covid-19 this will be an even larger problem, given its impact on employment and the divergence between those who have real-asset exposure vs. those who do not.

In Exhibit 28, we use the UK as an example where real estate and pension assets make the largest contribution to the net wealth of an age cohort. We show data on how given five-year age cohorts have fared over 2006-12. If we focus on the break points in the chart, it shows us the net wealth of adjoining age cohorts for any given age, i.e., when the older cohort was a given age at the start of the sample period and when the younger cohort had reached that same age at the end of the sample period. For the cohorts born before 1951, each cohort had more net wealth at a given age than the one that went before. However, since the 1951-55 cohort that has not been the case. For example, at the age of 60, the 1951-55 cohort had 30% less wealth than the 1946-50 cohort did at the same age.

The bottom line is that younger tax payers will be increasingly unwilling to pay pensions for their seniors who have generally been better off than them when adjusted for age.

EXHIBIT 28: **UK median family net financial wealth per adult, by cohort: 2006-08 to 2012-14**



Note: Exhibit compares median net financial wealth across 14 five-year birth cohorts over the period 2006-08 to 2012-14, with the horizontal axis indicating the median age of that cohort at each point in time.

Source: Resolution Foundation, http://www.resolutionfoundation.org/app/uploads/2017/06/Wealth.pdf

In addition to the shape of the demographic distribution and the question of inter-generational fairness, there is the question of debt. Debt/GDP has now reached a level last seen at the end of WWII. But at that time the shape of the age distribution and their wealth was very different. Moreover, the political narrative appears to be one that will allow more debt to be issued. Of course, this is being done at historically low interest rates, but that would be hard to maintain were the cost of debt to rise, thus putting an even further burden on future tax payers. This emphasizes the need to keep interest rates low so that the cost of debt is less than the growth rate.

Conclusion

So where does all this leave us?

The policy implications of this will likely vary by country. In some, these forces could well lead to a gradual swing in favor of funding pensions from future taxation, but at least for markets such as the US and the UK, that seems very far from being a palatable political reality. So, if future taxpayers are not on the hook, then savings rates go up. This implies the velocity of money continues its downward path of recent decades. Policy makers can still likely generate inflation through a combination of direct fiscal action and possibly even larger increases in the money supply.

The need to fund pensions, but also the desire to raise inflation and the increased difficulty of generating a given level of positive real returns is likely to shape the way investors save for retirement. Eventually, regulation may have to change to allow pension plans to take on more risk, or ideally redefine risk in terms of the probability of a hardship outcome rather than trailing volatility of returns or asset-class mix. We discuss this in the "Let's Play Twister, Let's Play Risk" chapter. Such a shift would imply a longer investment horizon and specifically more equities, more long-short, and greater use of cross-asset factors alongside asset classes.

It also brings us back to the question of the point of the equity market and that of active management. At the micro level, for any individual investor and any individual PM, it is to provide a return stream. But in aggregate, there is an emergent property, which is the ability to allocate capital. An increase in the savings rate does not mean people hold cash, instead they hold equities. Increased savings means, by definition, that capital is not being deployed as consumption. However, a greater level of activity when it comes to engagement with the management of companies that are owned and more focus on the concept of stewardship means the capital can be very economically active. And so we come — by a very different path — to the ESG role of active managers as an increasingly important way to generate growth in the economy.

The other connecting force here is the twin desire of governments to fund continuously high levels of deficits in our new policy world, but also to keep alive the notion that individuals can save to fund their own pension. A joined-up view suggests the role of a government debt management office is not just to issue debt securities to fund expenditure, but also to create a flow of assets needed for retirement. This could lead to greater innovation, e.g., in the idea of GDP-linked bonds or else in funding some expenditure via the issuance of annuities.

SO WHERE, EXACTLY, MIGHT INFLATION SHOW UP?

OVERVIEW

- If there is a case for inflation, where might price rises appear? It feels like we are still a little way from that point today, but are there segments of the economy investors should look to for signs of price increases? In addition, which parts of the equity market could be expected to respond most favorably? This chapter tries to address these twin macro and portfolio questions.

- We think the policy response to Covid-19 will ultimately be inflationary. However, at the moment, we are still undergoing the deflationary shock of social distancing rules. While inflation expectations in the US have just come back to their pre-Covid-19 levels, we are still some way from seeing a definitive move higher in aggregate inflation expectations.

- With inventories at a very low level and supply having been cut, some sectors have managed to increase prices, e.g., US airlines and European autos. We discuss the potential for when prices could rise across other cyclical sectors. It will also be important for investors to distinguish between any rapid price increases that arise as a result of inventory re-builds vs. price increases that could signify a policy over-reaction, as these would have different implications for equities and the yield curve.

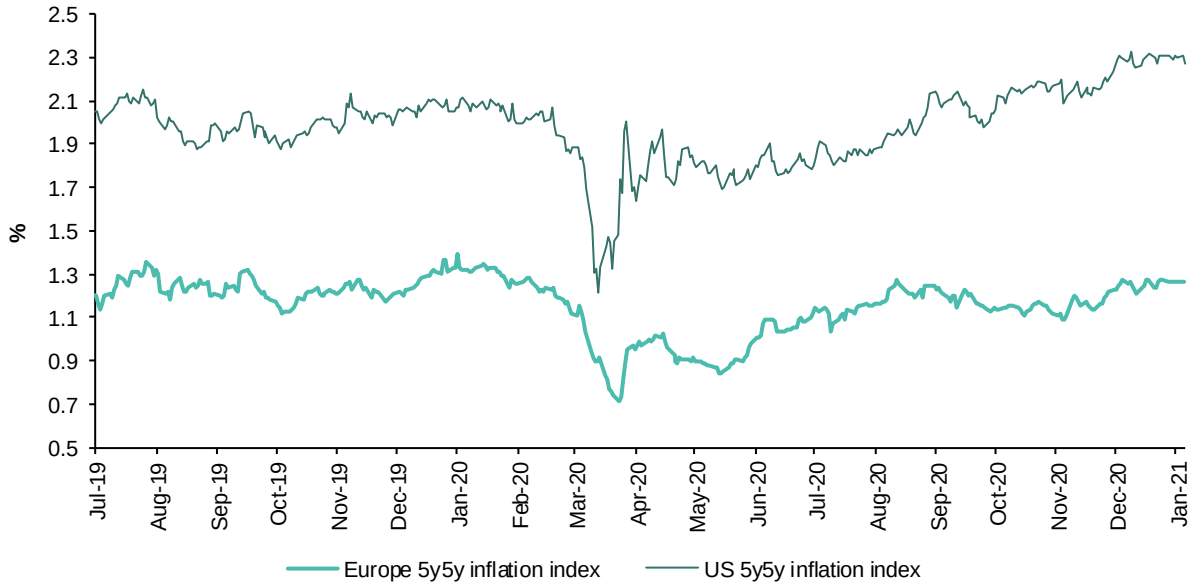
- The potential for raising prices can act as a catalyst for parts of Value-Cyclical sectors. Thus, we think selected exposure to parts of the Value trade and parts of cyclicality are warranted. We update our list of "Residual Value" stocks within Cyclical stocks; we also analyze performance and valuation for relevant sectors. The Cyclical Value screen implies that investors who want exposure to Cyclical/Value and the potential for prices finding a floor should have exposure to airlines, autos, and aerospace/defense among other selected stocks.

DETAILS

We have made the case in earlier chapters that the policy response to Covid-19 will be inflationary. This conclusion is ultimately the result of three large forces. Governments are incentivized to create inflation as a way to keep record debt levels manageable; governments have rapidly adopted new fiscal tools in response to the pandemic that can be more directly inflationary, and any hesitancy about large increases in the money supply appear to be in abeyance. Having said that, while inflation expectations have recovered from the extreme low levels of H1 2020, they have only just risen above the levels of end-2019 in the US and are still some way below that level in Europe (see Exhibit 29). This is because there are still significant doubts about whether in the long-term policy can indeed overcome the deflationary forces that have been so dominant in recent years. Also ongoing social distancing measures mean we are still in the midst of a deflationary shock. Indeed,

the emergence of Europe's second Covid-19 wave has again put downward pressure on expectations of future inflation.

EXHIBIT 29: **US and Europe 5y5y inflation expectations**



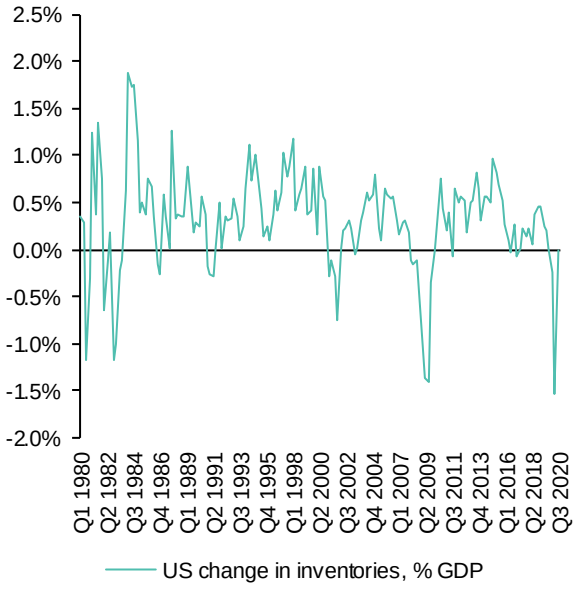
Source: Bloomberg and Bernstein analysis

Where is inflation likely to show up first? If the policy response is successful, it will eventually show up in aggregate CPI, but can we expect it to emerge in other indicators or in segments of the economy first?

Even before the pandemic hit, inventory growth was running at a very low level (see Exhibit 30 and Exhibit 31). Inventories fell further during 2020. This means there is potential for relatively rapid price increases in segments of the economy where inventories are tight once demand returns. Likewise, there are more service-type sectors where capacity has been cut. Thus, a company that has already cut capacity — and has possibly seen competitors go bankrupt — may well have the ability to raise prices. An example here would be the airline sector, where capacity has been cut by an obviously huge degree.

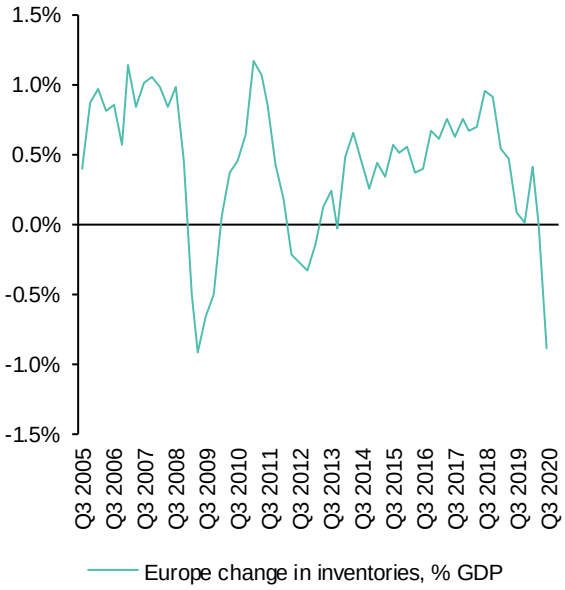
Note that we are careful not to describe this as pricing power; it's not as if there are bountiful near-term profits available. However, tangible evidence of where prices are already rising and where we can expect near-term changes, is crucial for a bottom-up affirmation that inflation is indeed possible. Moreover, the tightness of inventories and of supply, in some cases, means there is the possibility of a very rapid rebound in prices as demand recovers. It is going to be important for investors to distinguish a very rapid price increase due to inventory rebound vs. one driven by a policy over-reaction. These would have very different implications for the equity market and the yield curve.

EXHIBIT 30: **US change in inventories % of GDP**



Source: Datastream and Bernstein analysis

EXHIBIT 31: **Europe change in inventories % of GDP**



Source: Datastream and Bernstein analysis

In the next section, we reference the work of Bernstein analysts across the key sectors where we think this question of pricing has key macro connotations for portfolios more broadly. There are a few areas where the ability to raise prices has persisted through the pandemic — such as luxury and selected apparel (e.g., Nike). There are other areas where there has already been an increase in prices; examples would be US airlines and European autos. Likewise, there are other areas where price declines haven't been as bad as expected, such as hotels. In this debate, we are leaving aside the commodity cyclicals, as that is a more overtly macro top-down trade.

Autos

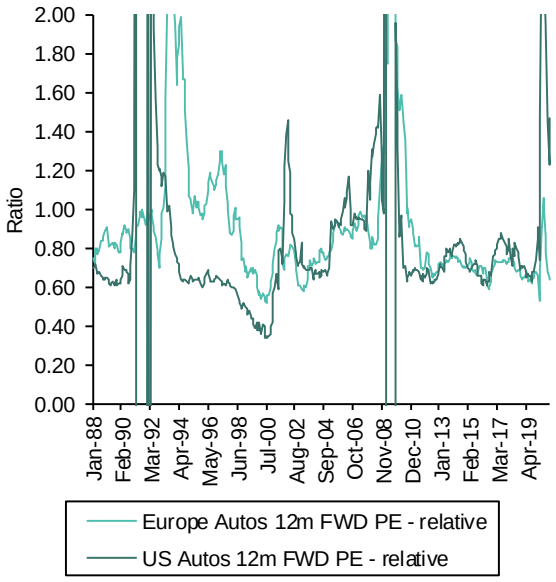
Our autos analysts are seeing some very positive pricing trends in the sector. As a result of the pandemic, they are seeing strong customer demand pull while at the same time the available stock levels are not excessive. Thus, auto OEMS are benefiting from positive net pricing and strong residual values.

The team also expects a secular recovery in vehicle demand as a result of changing behavior and lifestyles, such as moving out of cities and into the suburbs, and consumers re-discovering the benefits of personal mobility by car. They believe that retaining most of the positive pricing is doable and should be at the top of management teams' agendas.

Based on their proprietary pricing model, they estimate that a 1%-point increase in new light vehicle net pricing would increase the global profit pool for OEMs by a staggering €20Bn. For more details see: Euro Autos: Pricing - the Gateway to sustainably higher profitability and valuation.

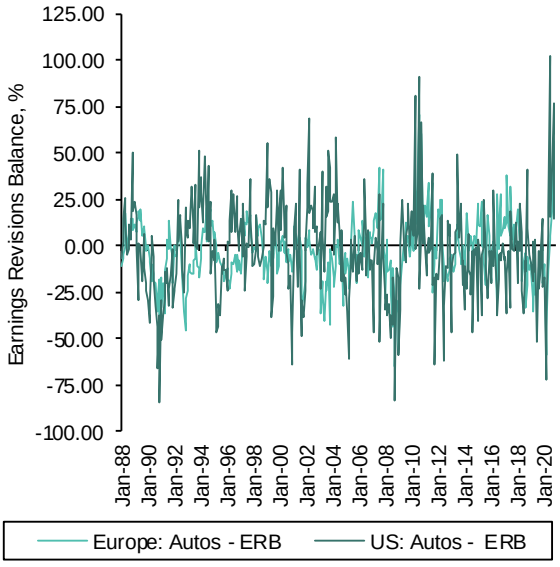
In Europe the sector currently trades at a 37% discount vs. its historical relative average (see Exhibit 32). However, the earnings revisions balance (ERB) for the sector both in the US and Europe has gone up significantly in recent months and is looking quite extended (see Exhibit 33).

EXHIBIT 32: **US and Europe autos relative 12-month forward PE**



Source: FactSet and Bernstein analysis

EXHIBIT 33: **US and Europe autos earnings revisions balance**

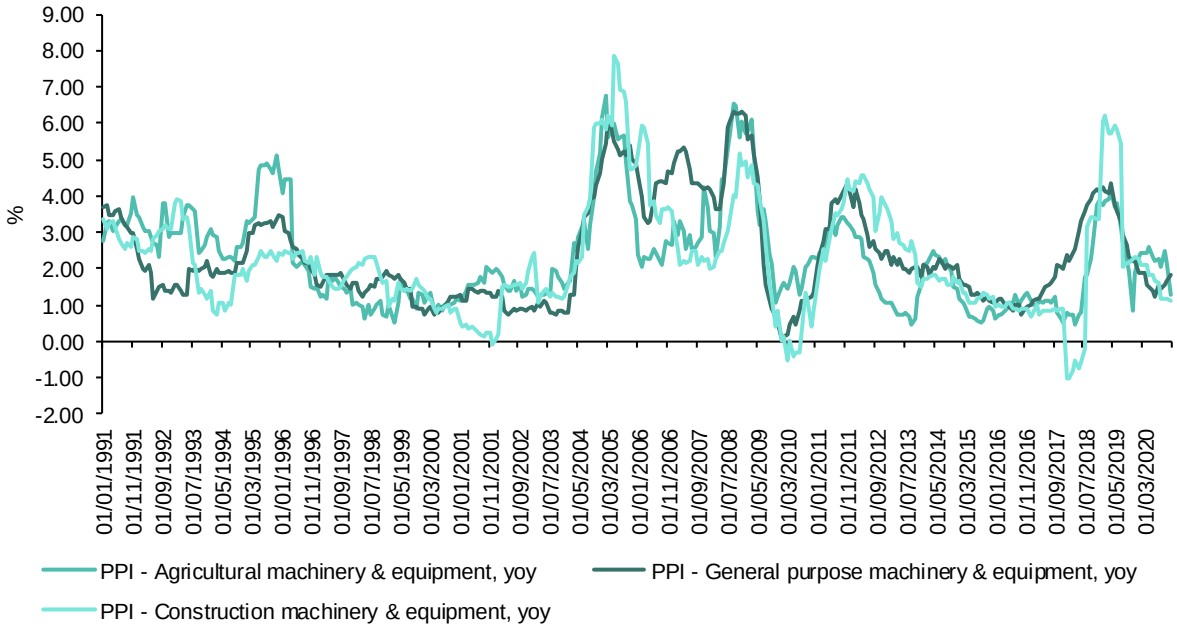


Source: FactSet, IBES, and Bernstein analysis

Machinery

In the machinery industry, our sector analysts note that pricing has been hard to come by in 2020 due to overstocked inventories and weak demand. Not many companies under their coverage are talking about pricing power. This is reflected in the Machinery Producer Price indices, which have been trending lower since the second half of 2019 and currently remain significantly below historical average (see Exhibit 34). One area our analysts highlight as holding up better is the agricultural equipment space. They note that US farmers are currently enjoying the benefits of record high prices, high yields, and record government payouts. Meanwhile, agricultural equipment spending is at a 30-year low and the market is long overdue for a replacement cycle. Thus, they believe the farmers' strong cash position and the need for replacement spending will continue to sustain the agricultural equipment cycle (for more details see: US Chems/US Machinery: High crop prices + good yield + bailouts = highest farm earnings since 2012/exceptional 2021 for ag cos).

EXHIBIT 34: **US Producer Price Index (Machinery)**



Source: Datastream and Bernstein analysis

Airlines, logistics, and freight

Airlines

In Europe, low-cost airlines and airlines focused on short-haul will likely be able to raise prices first, as there is a lot of pent-up vacation demand that will likely be released as soon as travel restrictions are lifted. According to our analysts, the indications are that airline pricing can return to pre-Covid-19 levels fairly rapidly during 2021, as this pent-up demand will have to be met by reduced supply by most EU airlines.

Our US analysts note a similar sentiment. With capacity down 50% or more and an expected fast pickup in demand once travel restrictions are lifted, there should be room to allow the carriers to manage up revenue. They also note US airlines are already able to get a 10-15% premium for tickets leaving in late 2021 compared with tickets leaving in mid-2021.

Freight Transportation & Logistics

According to our analysts, the current volatility in the freight markets enables forwarders to increase their services and support pricing. This will likely continue as rate volatility continues.

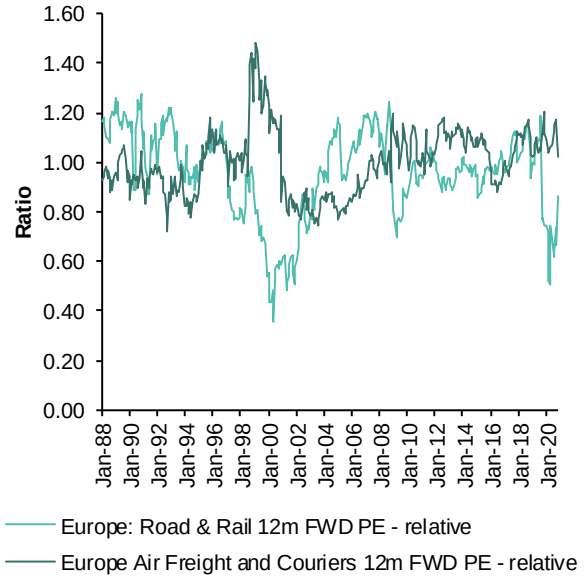
On air freight, they note there is a multi-year supply shortage. This will enable cargo airlines to keep prices at all-time highs for longer and will also help Express companies (DPW and FDX) to gain volumes and influence their mix. The faster mail decline in core European countries will eventually lead to price increases on mail prices.

They also note surface transportation rates in the US set a new record in October 2020 and this is expected to continue. Railroads as assets with pricing power are a theme here, as they can keep some of that price as profit, whereas truckers are recovering the higher cost of seating a driver. Air cargo will likely be very strong for the near term on reduced passenger supply (see Exhibit 35 to Exhibit 38).

Finally, they suggest that the parcel market has an opportunity to increase rates as more and more retailers are meeting their customer at the doorstep. This reduces the ability of carriers to compete on prices and forces collaboration, which leads to stickier rates.

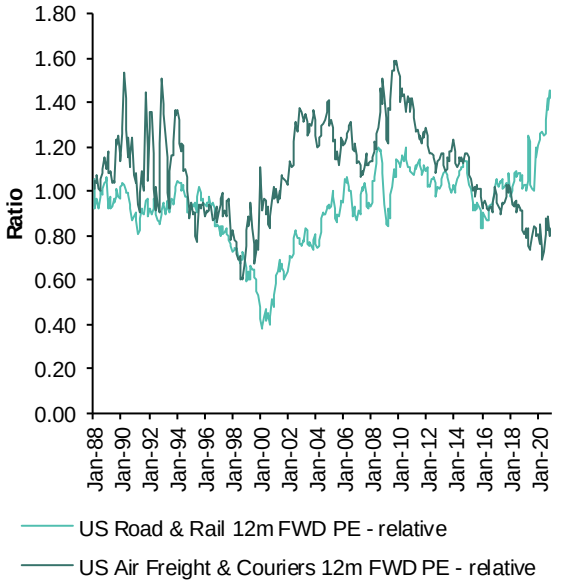
The US transport team publishes a weekly Rails dashboard tracking the key sector metrics: Rails W44-'20 Carloads: Strong bounce in intermodal, signs in life in merchandise, coal continues to lag.

EXHIBIT 35: **Europe: Road and rail/air freight & couriers 12-month forward PE relative**



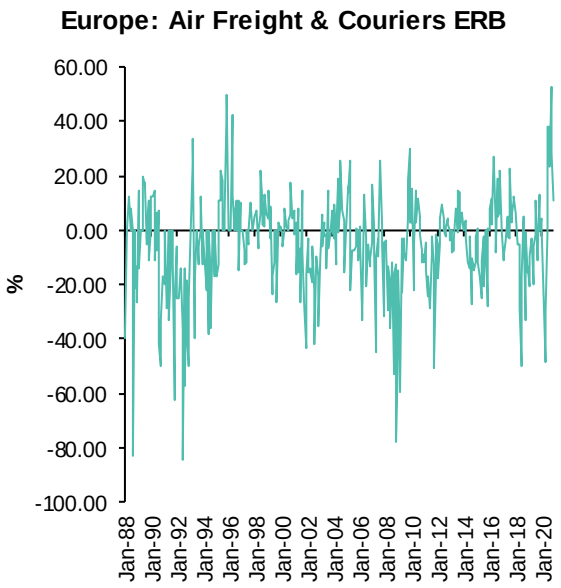
Source: FactSet and Bernstein analysis

EXHIBIT 36: **US: Road and rail/air freight & couriers 12-month forward PE relative**



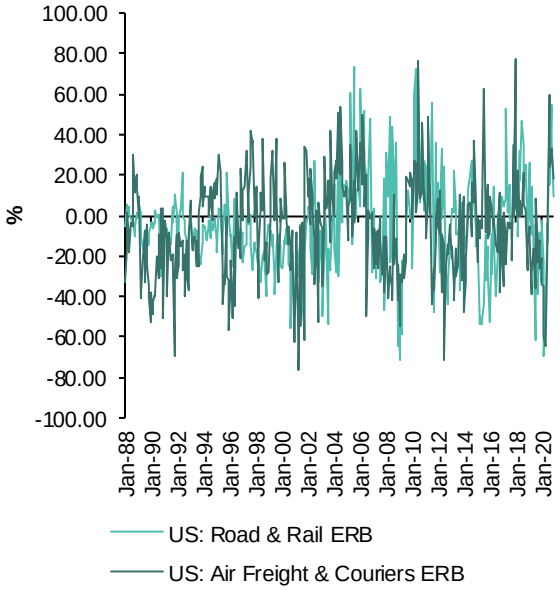
Source: FactSet and Bernstein analysis

EXHIBIT 37: **Europe: Air freight & couriers ERB**



Source: FactSet and Bernstein analysis

EXHIBIT 38: **US: Road and rail/air freight & couriers ERB**



Source: FactSet and Bernstein analysis

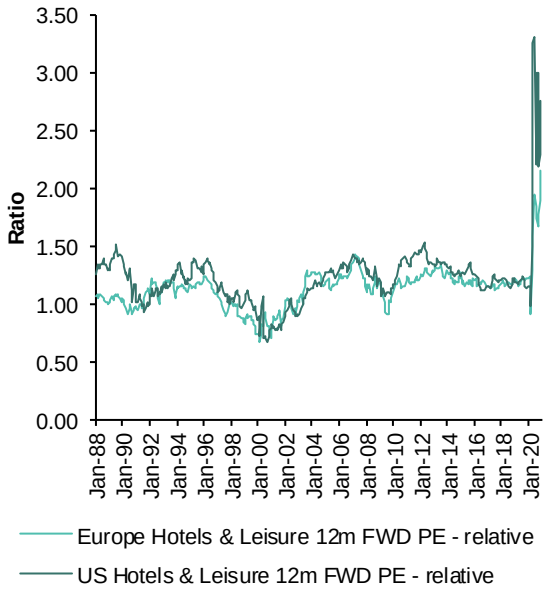
Hotels

Our analyst notes that in 2020 pricing held up much better vs. demand compared to previous downturns due to a better level of price control/discipline. In past downturns, price declines have matched falling demand very closely, but in 2020 the worst month of US room pricing (April) saw a 44% YOY decline in price, which was comfortably above the 68% decline in demand. They also note that any price weakness is driven by mix. This effect is expected to last three to four years, until business travel recovery catches up with a recovery in leisure travel. Within different hotel segments, branded hotel pricing is much more stable compared to independents (see Exhibit 39). (For more details see: Global Hotels: Recovery check-in. Part 2 - How is pricing holding up?.)

Our Global Hotels and Luxury Goods teams have a weekly tracker that shows occupancy and pricing trends across key cities around the world (see: Global Hotels & Luxury Goods: Coronavirus ... leading indicator tracker (week ending 25 October)).

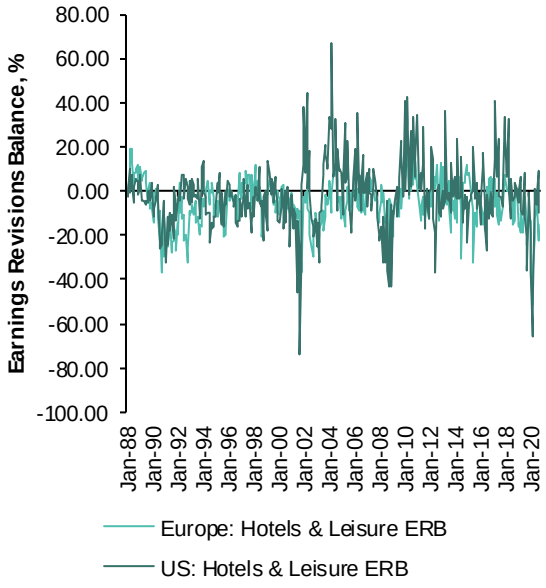
Earnings expectations are still muted, as in both Europe and the US the ERB is still negative (see Exhibit 40).

EXHIBIT 39: **US and Europe hotels, restaurants, and leisure sector valuation**



Source: FactSet and Bernstein analysis

EXHIBIT 40: **US and Europe hotels, restaurants, and leisure sector ERB**



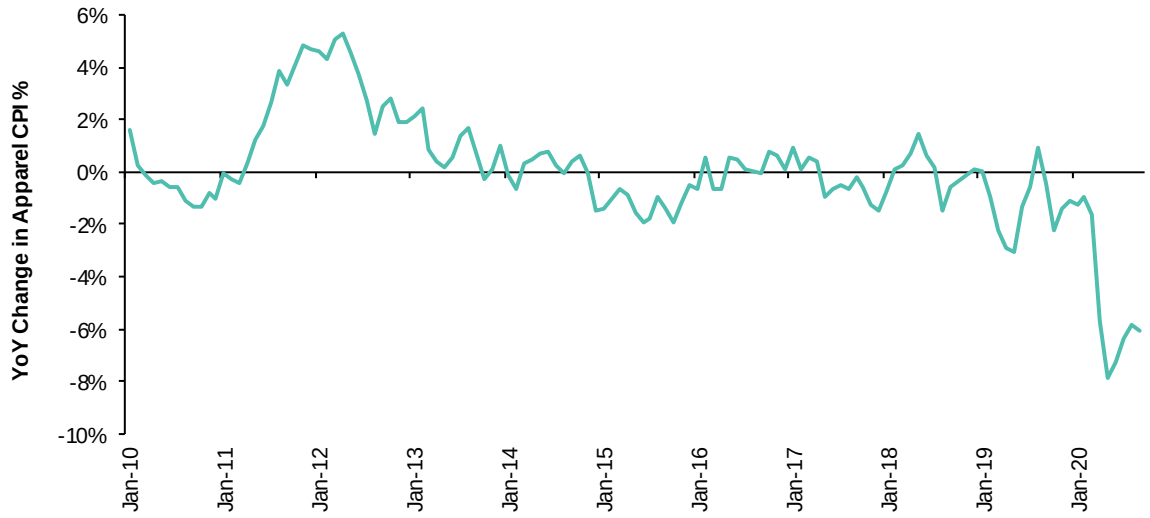
Source: FactSet and Bernstein analysis

Retail

For discretionary retail, pricing trends remain challenging. Our European General Retail analyst, Aneesha Sherman, notes that because of the fragmented and competitive nature of the market, pricing power of retailers is generally weak and they tend to absorb cost increases rather than pass them on to consumers. This pressure has been exacerbated due to the pandemic and, as a result, retailers are choosing to absorb the recent increases in air freight costs to keep pricing competitive, in an attempt to salvage what sales growth they can.

For US Softlines & Specialty retail, Jamie Merriman notes the problem of a massive inventory-to-sales imbalance that built up because of store closures in the spring, which led to heavy levels of discounting. The situation was worsened by bankruptcies and store closures, which put a very significant downward pressure on prices as shown in Exhibit 41. The only few bright spots in the sector are related to luxury, for instance Tapestry recently noted strong pricing for the Coach brand. However, that was mainly driven by brand-specific initiatives. Nike has also managed to buck the trend and consistently demonstrated pricing power despite the pandemic.

EXHIBIT 41: **US apparel CPI, YOY**



Source: Haver Analytics and Bernstein analysis

Luxury

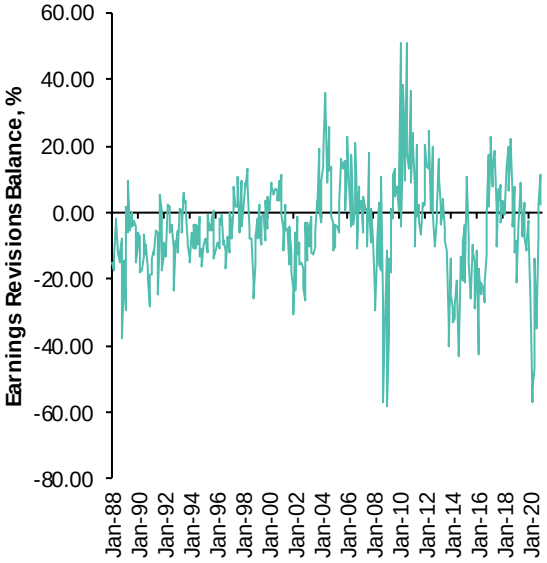
Historically, the Luxury sector has enjoyed extremely strong pricing power and was able to increase prices at a rate that's about 2x higher than the broad CPI index. Going forward, however, our sector analysts warn against excessive market push and price hikes. They prefer brands that have an unrealized pricing upside resulting from high consumer desirability, strong organic growth momentum, and restrained price increases in the recent past (for more details see: Global Luxury Goods: the "Untapped Price Increase Reservoir").

The strong pricing power is clearly reflected in the sector valuation — on a 12-month forward PE basis, the sector trades close to an all-time high valuation relative to the broader European market and at a 63% premium relative to historical average (see Exhibit 42). Moreover, the ERB has recently crossed into net upgrade territory, indicating increasing consensus optimism for the sector's earnings prospects (see Exhibit 43).

EXHIBIT 42: **Europe luxury sector relative 12-month forward PE**

Source: FactSet and Bernstein analysis

EXHIBIT 43: **Europe luxury sector ERB**



Source: FactSet, IBES, and Bernstein analysis

Portfolio implications

The conclusion from this is that there may be pockets of price increases that emerge in certain sectors before it shows up in overall CPI. Moreover, for cyclical sectors within a Value universe, these price increases could provide a specific impetus in 2021. We address this in the chapters devoted to the Value factor.

DURATION IN EQUITIES GOOD, DURATION IN BONDS BAD

OVERVIEW

- The financial reality post Covid-19 is the attractiveness of different kinds of return streams being thrown into sharp relief. Nowhere is this more apparent than in the relative merits of duration in equity and fixed income markets. This underlies a need to overweight Growth (especially Tech/Healthcare) and also Consumer Staples sectors when viewed from a cross-asset perspective.

- While the Covid-19 crisis has accelerated the long-running fall in discount rates, we think it has brought a profound change in the policy response and, hence, inflation. An outlook of (eventually) rising inflation, but with real rates locked low would be a break from recent decades where both inflation and real rates have fallen.

- We compare the fair value of four different types of assets: (1) high-growth equities, (2) Consumer Staple equities, (3) 10-year bonds, and (4) 10-year TIPS — assuming a simple model where the equity assets are able to generate different levels of positive real growth.

- In our stylized model, an outlook of inflation rising to 3% but with no change in real rates would lead to the value of Staples rising by 12% and the value of a stylized Growth stock rising by 27%. TIPS would see essentially no change in value and the return on 10-year government bonds would be -17.5%.

- Of course, this depends on a macro outlook that is very different from the recent past. What justification can there be for this? We think this rests on the need that governments have to keep the cost of debt below the growth rate and also reflects the fragile nature of inflationary pressures when unemployment is likely to remain very high.

- The investment case made in this chapter really comes into its own when equity sectors are considered from a cross-asset perspective. So far, there has been no material flow into equities and out of high-grade fixed income post Covid-19. That can be rationalized in the context of a short-term outlook that is very uncertain and that we are still in the midst of a deflationary shock. We think these flows will, however, be large on a multi-year horizon.

DETAILS

The post Covid-19 outlook for investment is one that is likely to throw the attractiveness of different kinds of return streams into sharp relief. In a sense, this just carries on the trend that was in place for years before, with yields falling and long-duration assets seeing an advantage as a result. But in one crucial way we think that the policy environment has changed. We think that inflation is set to rise — once we are past the current deflationary

shock — but that rates will not rise in response. If this is correct, then it causes a major change in the way we think about long-horizon cash flows.

Maybe the point is so obvious as to be trivial, but an outlook where real yields stay low or even fall further while inflation rises drives a wedge between different kinds of long-duration assets. It means that long duration in equities is attractive, but long duration in traditional fixed income is not.

Why the regime is different

This position rests on the assumption that inflation can indeed rise and that rates do not rise by a commensurate amount in response, as we have discussed in earlier chapters. On balance, the reason to really believe in inflation is more to do with the pollical economy than macroeconomics. We are in an environment of a blend of macro and fiscal policy, and policy decisions can be engineered to create inflation, even stopping well short of policies such as MMT.

However, if that inflation outlook is fragile — and the failure of prior QEs to achieve that suggests that it is — then rates are likely to stay low as inflation rises. Moreover, given the scale of debt, governments will be incentivized to keep the cost of debt below nominal growth rates. Thus, we think rising inflation will not be met by rising rates. We have already seen some of this in the Fed's move to inflation averaging, but ultimately more steps can be made to ensure market yields remain capped.

Two types of long duration in equities

Two types of equity assets stand out as being attractive when viewed in this light from a cross-asset perspective. These are Growth equities that offer high real growth rates far into the future but with low payout ratios. The second group are the core candidates as "fixed income replacement" in the form of Consumer Staple companies.

Later in this *Blackbook*, we show how the case for US growth stocks still remains. It is predicated on two observations: (1) that real rates remain anchored low and (2) that the longevity of growth for high-growth firms has increased.

Currently, the US Consumer Staples sector offers a 2% premium in dividend yield compared with the US 10-year government bond — the highest level ever. While this spread has been positive for more than a decade, we think currently the yield advantage of Staples is particularly important, given the extremely low government bond yields that would imply significantly negative real returns if inflation reaches or exceeds the Fed's 2% inflation target. Moreover, bonds are currently facing the highest duration risk in history. Thus, we do not think they would be able to diversify equity risk as effectively as they have historically, if we see a sustained period of high inflation. Meanwhile, as shown in Exhibit 46, Consumer Staples historically had a very attractive return-risk profile in periods where US inflation was above 3%.

Equity duration good, bond duration bad

In the following section, we present the sensitivity analysis of bonds and equities to changes in inflation and real rates.

For bonds, we disaggregate the nominal interest rate into real yield and inflation, and model the impact on the present value of each, of the semi-annual cashflows and the principal. For the generic US 10-year government bond, we assume an annual 0.625% coupon, while for the 10-year TIPS we assume the coupon (starting at 0.125%) and the principal increase is in line with rising inflation. For the equity analysis, we explicitly model the first 20 years of cash flows. As a starting point, we begin with the current dividend yield for Consumer Staples and Tech sectors and assume it grows in line with the *real* consensus long-term earnings growth expectations averaged over the last 10 years. We also assume that any increases in inflation are fully passed on to earnings growth. We also assume that the real growth component starts to decline after year 10 and converges to the long-term terminal growth rate by year 20. For the terminal value calculation, we fix the r-g term to 2% to prevent the cases where r > g. The Equity Risk Premium is calculated as 12-month forward earnings yield – (real risk free rate + inflation) and for the cost of debt, we use the real risk-free rate + inflation + 1.35% credit spread.

For Exhibit 44 to Exhibit 47, we rebase the value to 100 in a scenario where inflation is at 1% and the real rate is at 0%, and show what happens to the price of the four assets with varying levels of inflation and real interest rates. For example, if inflation were to rise to 3% while the real rate remained at 0%, it would imply a 17.5% drop in the price of 10-year government bonds, the value of TIPS would remain unchanged, while the value of Staples and a stylized Growth stock would increase by 12% and 27%, respectively. We note this assumes the equities are able to offer a perfect pass-through of inflation. This could be questioned and, hence, the scale of the upside; but, any ability to offer positive real growth would support the multiples.

EXHIBIT 44: **US 10-year bond sensitivity to inflation and real rates**

		Inflation				
		1	2	3	4	5
Real Rate	0	100.00	90.83	82.55	75.08	68.33
	1	90.83	82.55	75.08	68.33	62.23
	2	82.55	75.08	68.33	47.21	56.72
	3	75.08	68.33	62.23	56.72	51.73
	4	68.33	62.23	56.72	51.73	47.21

Source: FactSet, Bloomberg, and Bernstein analysis

EXHIBIT 45: **US 10-year TIPS sensitivity to inflation and real rates**

		Inflation				
		1	2	3	4	5
Real Rate	0	100.00	100.00	100.00	100.00	100.00
	1	90.56	90.56	90.56	90.56	90.56
	2	82.06	82.06	82.06	82.06	82.06
	3	74.39	74.39	74.39	74.39	74.39
	4	67.48	67.48	67.48	67.48	67.48

Source: FactSet, Bloomberg, and Bernstein analysis

EXHIBIT 46: **US Consumer Staples sensitivity to inflation and real rates**

Real Rate \ Inflation	1	2	3	4	5
0	100.00	105.78	111.83	118.16	124.77
1	89.45	94.64	100.07	105.76	111.71
2	80.13	84.79	89.67	94.79	100.14
3	71.88	76.07	80.47	85.07	89.89
4	64.59	68.36	72.31	76.46	80.80

Source: FactSet, IBES, and Bernstein analysis

EXHIBIT 47: **US Growth sensitivity to inflation and real rates**

Real Rate \ Inflation	1	2	3	4	5
0	100.00	112.67	126.88	142.78	160.57
1	95.40	107.47	120.99	136.14	153.09
2	91.02	102.52	115.41	129.84	145.99
3	86.87	97.83	110.11	123.86	139.24
4	82.93	93.37	105.07	118.18	132.84

Source: FactSet, IBES, and Bernstein analysis

Conclusion

The emerging new policy regime makes applying experience of the last 40 years somewhat harder. However, we would argue there are strong reasons to suppose that governments will be incentivized to manufacture inflation while keeping real rates low. The ability of some assets to generate positive real returns is, of course, then crucial.

The main conclusion is that in such a world, equity exposure is desired — be it public or private equity. Dividends can usually at least keep pace with inflation. Long-duration equity assets are then especially favored. This is not to say there isn't a role for other equity exposures too. For example, commodity cyclicals also offer attractive income and incorporate an inflation hedge. Likewise, there is such a thing as long-duration Value companies — these can be thought of as turnaround stories.

The investment case made in this chapter really comes into its own when equity sectors are considered from a cross-asset perspective. There was a belated flow back into equities at the end of 2020, making up for the outflows earlier in the year. However, there has not been evidence of a strategic reallocation into equities and out of high-grade fixed income post Covid-19. That can be rationalized in the context of a short-term outlook that is very uncertain and that we are still in a deflationary shock. We think these flows will, however, be large on a multi-year horizon.

THE STRATEGIC SECTOR OUTLOOK POST COVID-19

OVERVIEW

We set out a longer-term, strategic view of sector allocation post Covid-19. This is not only a question of the "fundamentals" in each sector, but also depends on the macro outlook and a set of very different investor needs. These more macro forces acting on long-term sector relative performance are:

- The reaction function of fiscal and monetary policy having changed and real rates are likely to remain low or negative for a long time.
- Likely other strategic policy shifts, e.g., on tax, the bargaining power of labor, and tolerance of buybacks (looking more broadly than the recent US election).
- Valuation spreads at extreme levels, but for some parts of the market mean reversion likely broken.
- The changed demands of investors. The prospect of low real returns, less diversification, and higher inflation means the strategic sector outlook is likely to be shaped by cross-asset investors, rather than narrowly only considering equity investors.

This leaves us with the following strategic sector allocation:

- **Tech, Healthcare, and Growth Consumer Cyclicals — overweight:** Persistent low discount rates and a greater persistence of superior growth means long duration within the equity market remains attractive.
- **Consumer Staples — overweight:** From a cross-asset perspective, this offers a sustainable income stream. This is attractive now that fixed income is less "risk free." Moreover, this sector has a good claim of offering exposure to positive real growth.
- **Consumer and Industrial Cyclicals — selective overweight:** Record wide valuation spreads and the prospect of increased inflation has historically meant that some Value stocks get a bid. Selective stocks in these sectors should be able to react positively to the valuation and inflation stimuli.
- **Energy and Mining — selective overweight:** Commodity cyclicals are also candidates to respond positively to higher inflation. Moreover, after a dividend reset in some cases they are likely to be part of an income trade.
- **Banks — long-term underweight, possible tactical opportunities:** Although increases in inflation tend to help banks, historically such episodes have also seen the yield curve steepen. We think the yield curve will not rise to a usual degree as inflation rises, and

this tempers the macro case for *relative* outperformance. There may well be a tactical case to own Banks as inflation starts to rise, but over strategic horizons that outlook is less attractive.

- **Real Estate — underweight:** In theory, higher inflation and low real rates would help. But correlation of REITS with equities increases with inflation and equity allocations have to increase already. Moreover, parts of the sector likely face some severe fundamental headwinds.

DETAILS

Looking beyond the tactical uncertainties of Covid-19, how should investors position within the equity market from a strategic perspective? We interpret this as a forecast over a three-to-five-year forward horizon This is not just a question of opining on what sector business models may happen to win out as the world adjusts to the world post Covid-19. We think long-run equity sector positioning has to be assessed across several dimensions, some of which are linked to the macro policy outlook and some to how the demands of investors will change post Covid-19. It is the confluence of these forces that will shape relative sector performance in the long run. Specifically:

- Long-term path of rates, inflation, and changing reaction function of monetary and fiscal policy.
- Other policy decisions on tax, power of labor, and tolerance of buybacks.
- Earnings path/"fundamentals" for sectors.
- Valuation spreads are at extreme levels, and while valuation tends to be swamped by other factors it matters more over strategic horizons. How much of these valuation spreads can mean revert?
- Also, there are the changing needs and demands of investors that will shape the long-run sector outlook. Long-term asset owners face new challenges post Covid-19 that changes how they should view sectors. Also, ESG investing is likely to grow.

We think real rates will stay low for an extended period and that the policy response to Covid-19 will be inflationary. We write about this in detail in the "Inflation, Investing, and the coming of MMT" chapter. Moreover, the whole policy reaction function has changed. This is evident in the recent Powell speech laying out an "averaging" approach to inflation targeting, but we think goes further than this and moves to a combination of fiscal and monetary policy and, hence, a shift away from the macro framework of the last 30 years.

It seems likely that over strategic horizons post Covid-19, the evolution of policy sees a reaction against the shareholder-first capitalism of the last 30 years. The forces against this were already mounting before the pandemic, but permanently higher unemployment and sharply increased inequality increase the pressure for this. The outcome of the US election will clearly have an impact in the near term, but thinking beyond the current election cycle and also beyond the shores of the US, a few large trends stand out. Tax rates seem destined to be going up globally and for a long time, given deficits. It also seems likely

that various policies will shift bargaining power back to labor. This could be through increases in minimum wages, but also eventually though programs such as UBI, which we think will be adopted by some developed countries in due course. This could clearly influence labor-heavy industries where pay levels are lower. We also think there may be questioning of the whole model of levering up corporate balance sheets in order to engage in buybacks and whether that is a good idea and whether it is even acceptable. This also has sector implications.

Investor needs also seem likely to change. With real returns likely lower, greater difficulty in finding income, and less diversification between stocks and bonds, mean many equity sectors may now need to be observed from the point of view of a cross-asset investor rather than just from the narrow point of view of an equity mandate. Thus, sectors that do well as inflation rises, those that have a case for delivering sustainable dividends, and those that give long-term access to real growth are likely to see a bid as assets shift out of high-grade fixed income over a period of years. A significant part of this capital will flow to non-listed assets, but the equity market will probably have to absorb a lot of this flow, given its size and limits to how much of the private asset universe can be easily accessed for many investors.

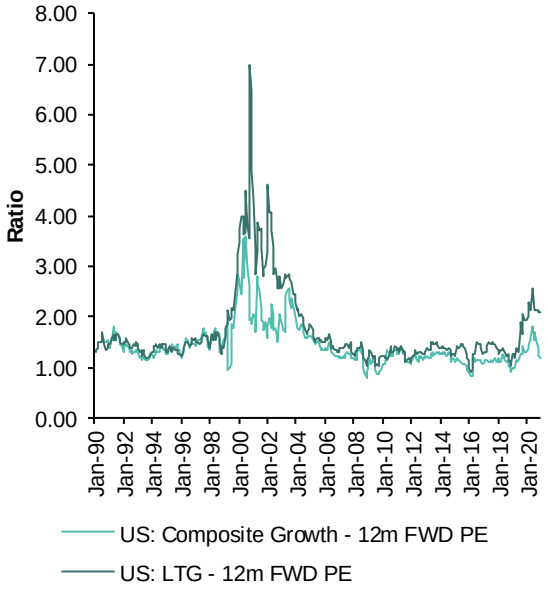
The other change in investor demand is likely to come from ESG. ESG is here to stay and it will likely grow, although figuring out exactly what it means (and how to get paid for doing it) will take more time. We think much of the active management approach to ESG will focus on engagement, that lends itself more to stock-level investing rather than broad sector conclusions. However, the implication is also that there is likely to be a shift away from buying companies that are already "good" toward those that have a runway to improve. Though at the same time cheap passive implementation (smart beta for ESG) will likely also allow asset owners to buy into big themes (e.g., decarbonization).

So, where do these views leave us?

Tech, Healthcare, and Growth Consumer Cyclicals

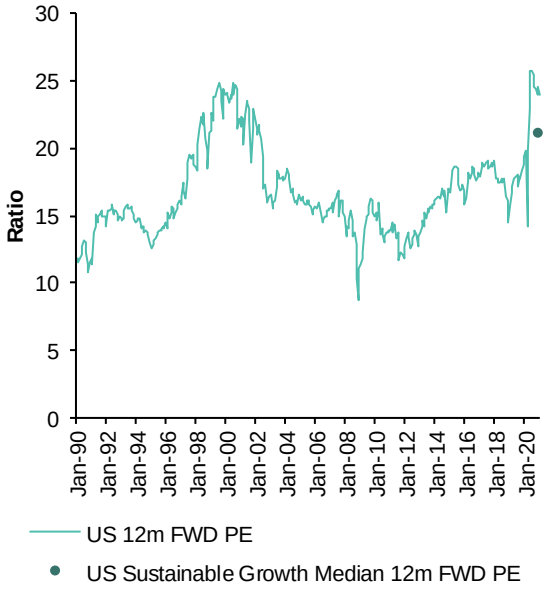
The confluence of real rates anchored low for a long time with greater persistence of growth and profitability for high-growth and high-profitability companies means long-duration sectors within the equity market can maintain a high level of valuation. Yes, the valuation of Growth stocks in the US has risen above average relative levels of the last decade, but the valuation spread of high- vs. low-growth stocks is still far from being at historical extremes (see Exhibit 48). We showed in the "Why US Growth Can Continue to Shine" chapter that for our group of sustainable growth names we can justify today's absolute valuation levels, given the current level of rates and the observed level of persistence of growth. Moreover, on a relative basis, our group of sustainable growth names actually trade at a discount to the broader market, in part because of the collapse of forward earnings for parts of the cyclical space (see Exhibit 49). Our sustainable growth list is overweight Tech/Communications and Healthcare; it also has exposure to some of the more growth areas of Consumer Cyclicals.

EXHIBIT 48: **Valuation of high- vs. low-growth stocks (Composite Growth and Long-Term Growth 12-month forward PE)**



Source: FactSet, IBES, and Bernstein analysis

EXHIBIT 49: **Sustainable Growth basket 12-month forward PE vs. US market**



Source: FactSet, IBES (estimates of January 2022 EPS), MSCI, and Bernstein analysis

In addition to justifying the valuation of Growth stocks, there is also a question of demand. The main source of demand for equities for the past 10 years has been corporates themselves through buybacks. While buybacks are currently suppressed, when they bounce back, Tech seems likely to lead in this regard. Moreover, if antitrust concerns make it hard for them to do significant M&A, that would also support the ability to do buybacks.

The macro risk for Growth names is from a change in policy regime, i.e., a move to tighten perceived quasi-monopolies, deglobalization, and tax. Tech and Healthcare are the two sectors in the US that have benefited most from being able to lower their effective tax rates over the last decade.

Ecommerce

Short term, our analysts expect a physical retail fight back as markets start to re-open. They note that the US has 3-5x the retail square footage of most developed markets and lacks digital aggregators outside of Amazon that can effectively consolidate suppliers and ensure a frictionless online shopping experience. Moreover, it goes against decades of in-store buying behavior.

Long term, they continue to like the runway for growth in ecommerce migration — only 8% of sales took place online globally (ex-China) in 2019. Over the next decade, they expect penetration rates to approach 25-30% of total retail sales, led by: (1) offline-first categories such as grocery, apparel, beauty, and furniture moving online; (2) the emergence of "eShopping," driven by social commerce; and (3) faster adoption of digital channels abroad, particular in regions such as EMEA, APAC, and LatAm.

Digital advertising continues to take share from legacy (now at a faster pace), given it's a better mouse trap with measurable return for advertisers. The size of the addressable market will likely expand as ecommerce gains and retailers allocate dollars away from legacy expense buckets (e.g., trade/promo and rent) to digital advertising to drive traffic to online storefronts. We feel this longer-term total addressable market (TAM) expansion story often goes underappreciated and can be a significant source of value creation over time, as many investors view the digital ad market as relatively mature already (~50% online penetration of current ad spend).

Cloud is expected to be another post Covid-19 winner. Compute needs continue to grow — IDC has estimated that the global datasphere will grow from 33 zettabytes in 2018 to 175 zettabytes in 2025, implying a 27% CAGR. In a work-from-home world, internet consumption is up for both personal and professional use. The long-term secular trend of workload migration to the Cloud will accelerate on the back of Covid-19, as CIO budgets are put under pressure. With wallets tightening, we expect risk constraints to loosen, and cost to become the primary driver, which should inflect up the workload migration rate as macro pressures abate.

Regulation remains the key threat to Tech outperformance and the growth narrative. Amazon, Facebook, and Google are all in the spotlight and face multiple investigations spanning across antitrust and privacy that could come to fruition in early 2021. Antitrust focus on Facebook, Amazon, Apple, Netflix, and Alphabet (FAANG) means that big tech companies face constraints on the M&A front (particularly consumer-facing deals). This is concerning to longer-term investors that worry about big tech's ability to defend against disruptive technologies — if they struggle to innovate and can't buy, how effective are they at fending off competition? The flipside to this is that it offers some near-to-medium term support for steady and growing buybacks — there's only so much capital these businesses can/will deploy organically, and cash balances remain high (at unattractive yields).

See the "Why US Growth Can Continue to Shine" chapter for more details on this.

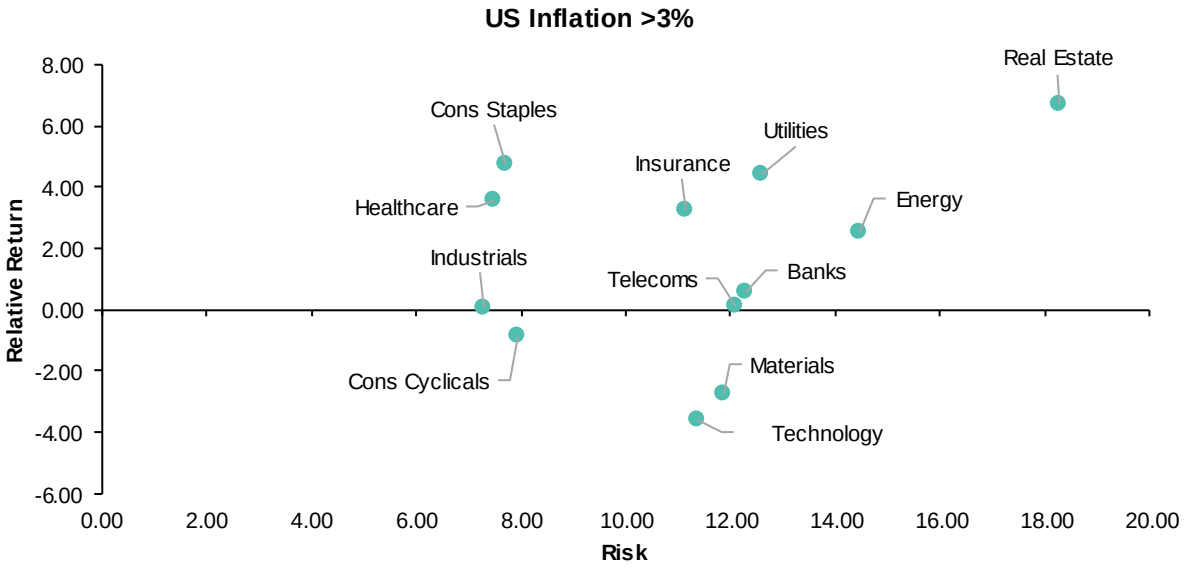
Consumer Staples

We think viewing the Staples sector through a cross-asset lens makes the most sense, both from the ability of the sector to deliver an income stream and from its claim to be able to deliver positive real growth in the long term. Thus, we discuss this sector in more detail in a separate chapter.

The spread between dividend yields in the sector with bond yields has never been wider. Unlike more cyclical or Financial sectors, there is evidence that Consumer Staples companies can maintain this level of dividend and also see it grow in real terms. The pushback against Staples being seen as part of a replacement for fixed income is that single-equity securities are more "risky." Yes, in a sense that remains the case, but elements of this are less clear than they perhaps were historically. The duration and, hence, interest rate risk of high-grade fixed income is higher than it has ever been before; fixed income is likely to be a less-good diversifier of equity risk. Also, in an age when elements of MMT-like policies are on the table and the age of "*pax Americana*" is over, it is not even clear if there is such a thing as risk-free assets.

If we are right in our call that inflation is set to rise in coming years, then Consumer Staples, along with Healthcare tends to be the sector with the best return-risk trade off (we note that Exhibit 50 unfairly punishes Tech, as for most of this period the sector was very different from how it looks now).

EXHIBIT 50: **US sector relative return and risk when inflation is >3%**



Source: Datastream and Bernstein analysis

Cross-asset investors are going to seek exposure to assets that can make a claim to have exposure to positive real growth. As an example, in the case of beverages, our fundamental analysts see two sources of real long-term growth: (1) volume growth in emerging markets where per capita consumption is low and (2) trading up in virtually every category and every geography, but especially in premium spirits and to a lesser extent premium beer. Like-pricing is harder to achieve; relatively strong in emerging markets with fragmented mom-and-pop retailers and in the US thanks to the three-tier system, but harder in Europe, with its very concentrated grocery retail landscape. However, beverage alcohol at least has inherently low private label penetration.

In the case of the US Food producers, our fundamental analysts would also be looking for names that are likely to deliver real long-term growth in emerging markets (such as McCormick and Mondelez), or those that are in categories tied to shifting consumer trends in the US (again McCormick, given its alignment with health and wellness trends), or those in the faster-growing snacking category, where even more indulgent snacking options seem to garner relatively robust pricing power due to low private label exposure (particularly Hershey). Given recent stock moves and valuation, we currently rate Mondelez Outperform, and Hershey and McCormick Market-Perform, but these would all be candidates for delivering positive real growth over the longer term. However, we would at present steer clear of those US-centric food names in meal-based and more heavily-processed food categories (General Mills, Kellogg, Campbell Soup, and Smucker's) — they have benefited from the pandemic and the shift to at home food consumption, but may

come under more fundamental pressure over the medium to long term as the consumer and retailer trends that prevailed before the pandemic reassert themselves. We discuss this with our sector analysts in our "The Cross-Asset Case for Staples" chapter.

Consumer and Industrial Cyclicals

As we showed earlier, there exists an unprecedented valuation spread across the equity market at present. So, one of the most controversial questions is: Can this valuation spread close? Will mean-reversion be a driver of sector returns? There are structural reasons why valuation has not worked as a factor in recent years, such as declining bond yields impeding mean-reversion and the switch of corporate investments from tangible to intangible assets, but one key missing piece has been inflation. We show in Exhibit 51 that over the last 90 years, the Value factor has done best when inflation has risen. Inflation has persistently disappointed on the downside over the last five years. If inflation is now set to rise, is this the key support for Value that has been lacking? If so, should one be buying the cheaper Value sectors?

EXHIBIT 51: **Inflation and Value have moved together for 90 years...**

Source: Ken French data library, Datastream, and Bernstein analysis

We think there has to be a differentiation between different kinds of Value trades. Perhaps the easiest case to make is for "undervalued," as opposed to simply being low multiple, industrial, and consumer cyclicals. Companies in these sectors that are on a large cyclical discount but have a good case that they can avoid bankruptcy either through sufficient liquidity or restructuring could be part of a tactical recovery in line with an earnings improvement in 2021, but also may derive support from longer-term recovery in inflation expectations. Thus, an eventual recovery means that a Value position can be taken in selected subsectors, e.g., airlines and hotels. Also in the Industrials are a group of automation names that we think have a structural case for growth. As deglobalization is likely to be a feature, then activity that is re-onshored is likely to be heavily automated.

We can overlay a fundamental perspective on these subsectors as well; for more details see The Day After *Blackbook*. For Hotels, our sector analysts expect leisure travel to ultimately recover to its long-term growth trajectory, driven by structural tailwinds such as aging population, rising middle class, preference for experiences vs. things, as well as recovery in flight capacity. They see business travel as more at risk.

Within automation, our analysts expect a significant positive shift in sentiment toward greater adoption of automation as a result of Covid-19. During the pandemic, not only were supply chains and operations severely disrupted by workers falling ill and factory lockdowns, there have also been sharp increases in absenteeism and worker turnover as factory operations resumed. Increased demand for re-onshoring of operations will also be a tailwind for greater automation demand, boosted by the re-acceleration of manufacturing wage growth in China. The loss of skilled workers could be mitigated by labor productivity enhancing technology. The analysts expect automation adoption to develop along two key lines — unmanned factories as a model for big and advanced manufacturers, and smaller-scale human-machine collaboration robots that enable automation at a more granular level.

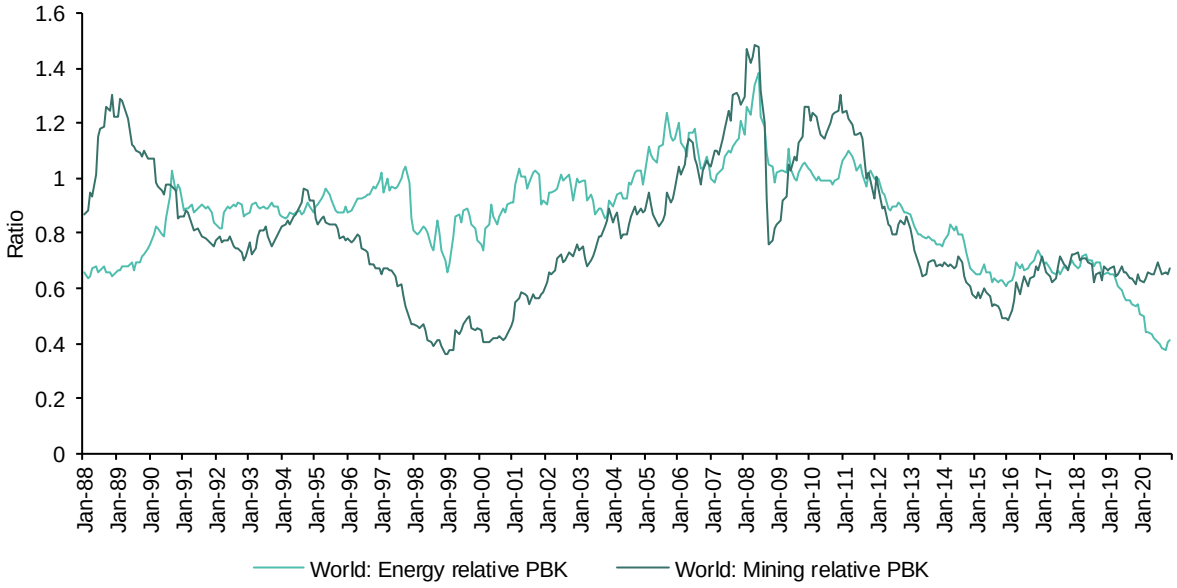
Our airline sector analysts expect travel demand to be shaped by the ability to travel and the economy's ability to afford travel post the Covid-19 recession, but ultimately they expect travel demand to return. They also expect meaningful reduction in capacity of up to 25% in Europe over the next two years. This would mark a significant change from previous cycles where capacity cuts by airlines exiting the industry were quickly backfilled by incumbents.

Energy and Mining

A second area of Value cyclicals that we think could benefit from inflation and from long-run mean-reversion are the commodity cyclicals. For investors who think the inflationary effects of the policy response to Covid-19 will be sooner rather than later, there is a case to overweight these sectors from now.

There has been a painful downward adjustment of dividend levels in some cases, but assuming the greater capital discipline of recent years can be maintained, the level of dividend yield now prevailing in the sector also leaves them looking attractive from a cross-asset income perspective (see Exhibit 52).

EXHIBIT 52: **Relative valuation of global Energy and Mining sectors**



Source: FactSet and Bernstein analysis

Banks

And then there are the banks. One of the issues of outlining a case for Value as a factor is that there is possibly a disconnect between the Financials and non-financials part of the factor. Banks have tended to respond very well to increases in inflation historically, along with the broader Value factor. However, the crucial difference is that usually increases in inflation are either accompanied by or subsequently followed by a steepening of the yield curve. This time we do not think that an increase in inflation will be met by a steepening of the yield curve. The shift in policy already announced makes it clear that rates will stay low even if inflation rises. Moreover, that policy could be further adapted to more tightly control the yield curve if need be.

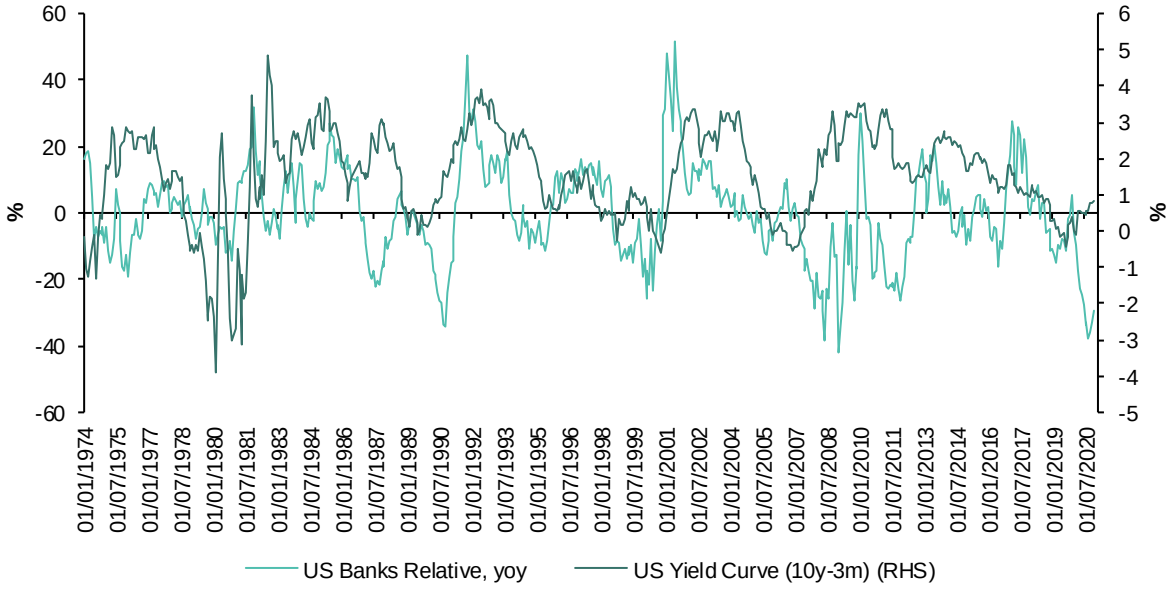
We can also see empirically that in the last couple of months inflation expectations have moved up but the yield curve out to 10 years has remained flat, only steepening at the 10Y-30Y maturities. Unstitching the effects of inflation and the curve on Financials in general is hard, especially if we are right in the assumption that we now face a very different monetary and fiscal policy regime. We show in Exhibit 53 that relative performance of the banks have a close relationship to the yield curve in addition to their link to inflation.

In Exhibit 54 and Exhibit 55, we show the result of a very simple bivariate regression where we plot relative returns of banks vs. the market against contemporaneous changes in inflation and the 3M-10Y curve. It depends how inflation is measured; inflation expectations measured via breakevens are equally significant to the yield curve, but realized inflation loses its significance when the yield curve is included in the specification. Looking across both these specifications together, we would conclude that while inflation may provide support, the yield curve is very significant. So, at the very least, without a steepening curve, the impact of higher inflation is likely to be muted. The question we are

asking here is where to allocate capital *across* the market rather than on an absolute basis. So, on that basis, we would prefer to buy the other parts of Value to gain exposure to mean-reversion, but not the banks.

In addition to this, there is also the point about bankruptcies. We think there is an extended bankruptcy cycle still to come. It has been blunted by policy support, but at some point it still needs to happen. We also worry that ultimately banks may not be able to be masters of their own destiny, given their key role in directing credit. Thus, on balance we want to underweight the banks.

EXHIBIT 53: **Banks relative performance and the yield curve**



Source: GFD, Datastream, and Bernstein analysis

EXHIBIT 54: **Relationship of US Banks relative performance with changes in US yield curve and CPI**

	Yield Curve	CPI	Intercept
Coefficient	5.05	-6.29	-0.78
se	1.89	2.19	1.19
t-stat	2.68	-2.88	-0.65
Rsq	0.17		

Note: The y variable for the linear regression was YOY returns of the US Datastream Banks index relative to the Datastream US market index and the x variables the YOY change in US CPI inflation rate and the YOY change in the yield curve defined as the spread of the 10-year US sovereign bond yield to three-month US Treasury bill yield. The data was monthly frequency over the most recent 10 years.

.Source: Datastream and Bernstein analysis

EXHIBIT 55: **Relationship of US Banks relative performance with changes in US yield curve and inflation expectations**

	Yield Curve	10y Breakeven	Intercept
Coefficient	6.27	12.29	-0.01
se	1.73	3.18	1.17
t-stat	3.63	3.86	-0.01
Rsq	0.21		

Note: The y variable for the linear regression was YOY returns of the US Datastream Banks index relative to the Datastream US market index and the x variables the YOY change in US 10-year breakeven spread and the YOY change in the yield curve defined as the spread of the 10-year US sovereign bond yield to three-month US Treasury bill yield. The data was monthly frequency over the most recent 10 years.

Source: Datastream and Bernstein analysis

Real estate

We are also underweight real estate. In theory, being told that a period of higher inflation is coming and that real returns are low would usually lead one to allocate a much higher exposure to real estate. Exhibit 56 shows that the returns from real estate and REITS conditioned on inflation tend to be higher when inflation goes up.

However, we think asset owners are going to be forced to strategically hold a higher equity exposure if the prospect of real returns elsewhere is low and inflation rises. If bonds are no longer an effective diversifier, then other parts of the total portfolio will also be needed to help diversify the overweight equity position. REITS see a correlation with equities that rises with inflation and, thus, are unlikely to be good diversifiers.

In addition, we would point out that the fundamental outlook for large parts of the real estate sector with exposure to central city office spaces and retail malls looks strategically unattractive post Covid-19.

EXHIBIT 56: **Real estate in theory benefits from inflation, but it is a less useful diversifier as well**

Factor and asset performance in different inflation regimes

Since 1970	US REITS, yoy	Real Estate Index, yoy
<-1	-37.47	-9.25
-1 to 0	-11.10	-4.34
0 to 1	3.67	3.95
1 to 2	17.71	5.37
2 to 3	22.50	4.26
3 to 4	21.90	4.68
4 to 5	4.20	4.04
>5	9.41	8.00

Correlation of assets to equities as inflation rises

Since 1970	REITS	Real Estate Index
<1	0.32	0.22
1-2	0.39	-0.03
2-3	0.33	-0.08
3-4	0.44	-0.10
4-5	0.49	0.02
>5	0.62	0.00

Note: The chart shows Real Estate and REITS returns in different inflation regimes, as well as the correlation with US equities. Real Estate Index returns are from Robert Shiller's database. Returns for REITS are from 1974.

Source: Robert Shiller's database, Datastream, and Bernstein analysis

THE CROSS-ASSET CASE FOR STAPLES

OVERVIEW

- Two guiding principles seem likely to be key for medium-term investing. First, investors are going to have to work harder to find sources of income, with high-grade bonds no longer serving that purpose. Second, investors will need to find assets that can deliver positive growth in real terms. In this chapter, we show that sectors such as Beverages, Tobacco, Food, and HPC can perform such a role in portfolios. This is not really an equities chapter, the strongest case for these sectors lies in their position in a cross-asset context.

- The dividend yield spread of Staples over bonds has reached an extreme level. Yes, earning income this way is more risky, but the risk in government bonds has increased massively too — they have longer duration than ever before, and the current fiscal expansion implies that government debt may not be risk-free. Holding Staples stocks for income can be offset by other portfolio holdings for diversification, liquidity, and risk, e.g., gold.

- Investors need to allocate more to real assets. We think equities can be seen in this light, as long as they are shorn of the engineering of the last decade of increased leverage to undertake buybacks. The nature of the Staples sector lends them to being thought of as real assets, given the ongoing demand for their products whatever the shape of the business cycle.

- Staples are relatively long duration compared to other equities, but much less so than bonds. Moreover, we show that historically they have achieved the best returns per unit risk in higher inflation regimes of any equity sector — in short, they have pricing power.

- Long-term consensus expected earnings growth for some subsectors within Staples, e.g., Beverages, have fallen to the 0-2% range in real terms. Close to zero real growth seems overly pessimistic for a business that sells booze. Moreover, these growth rates are well below historical achieved CAGR.

- This chapter is mainly for the medium term. More tactically, the record high valuation on the S&P, we think, implies a lot of volatility to come. So, in the short term, Staples can be thought of as part of a downside protection strategy, given their low beta.

- The bottom line is that we think there is a place for an overweight position on subsectors within Consumer Staples within a cross-asset portfolio right now.

DETAILS

Once we get beyond the immediate uncertainty of the path of the economy over 2021, two guiding principles seem likely to be key for medium-term investing. First, investors are going to have to work harder to find sources of income, with high-grade bonds no longer

serving that purpose. Second, investors will need to find assets that can deliver positive growth in real terms. In this chapter, we show that sectors such as Beverages, Tobacco, HPC, and Food Producers can perform such a role in portfolios. We stress upfront that despite being about specific subsectors and stocks, this is not really an equities chapter at all. We are not particularly interested in the case for these sectors vs. other sectors in the market. We think the really important issue is the role of these sectors in a cross-asset context.

The core of this chapter is the confluence of several factors:

- Investors will need income-paying assets, not least as the price appreciation of financial assets in recent years and in 2021 in particular makes further significant price appreciation from here very policy-dependent. Assets that deliver a positive real income are in short supply.

- Investors need more real assets in their portfolios. These are usually thought of as physical assets or rights to the income from a real economy service (e.g., delivering power). But stripped of the financial engineering of the last decade, we think equities can be thought of as real assets too. The nature of what sectors such as Beverages, Food, Tobacco, and HPC deliver seems to lend itself well to this. Their revenues may not be able to perfectly keep up with real GDP growth or inflation indefinitely, but they can do so much more effectively than many of the other potential assets that investors can buy.

- The consensus expected long-term annual growth rates for some of the subsectors within Staples have fallen to 0-2% in real terms. This seems very low given the "Staple" nature of their main products. Moreover, this is far below historical achieved growth rates. Long-term EPS forecasts are, by their nature, not something that are enough to base an investment thesis on alone, as the quality of such numbers is poor. But such low forecasts are striking for sectors that sell products such as alcohol!

- The dividend yield spread for these sectors over bonds has never been greater. Yes, an individual Beverages or HPC stock is a more risky asset than a 10-year sovereign bond. But the risk of the 10-year bond has gone up too — the duration of high-grade bonds is greater than it has ever been before, meaning they carry unprecedented interest rate risk; their diversifying properties vis-a-vis equities are declining, and the massive increase in government debt implies they are probably not really risk free.

- We think investors need inflation protection in the medium term. Whether the current policy response to Covid-19 will be inflationary or not is a point of intense debate. We cover the case for and against that elsewhere, but whatever one's view on this point, the risk of inflation has risen and the ability to protect from it should be worth more. We can show that the Staples sector has delivered better risk-adjusted returns than other sectors when inflation is elevated.

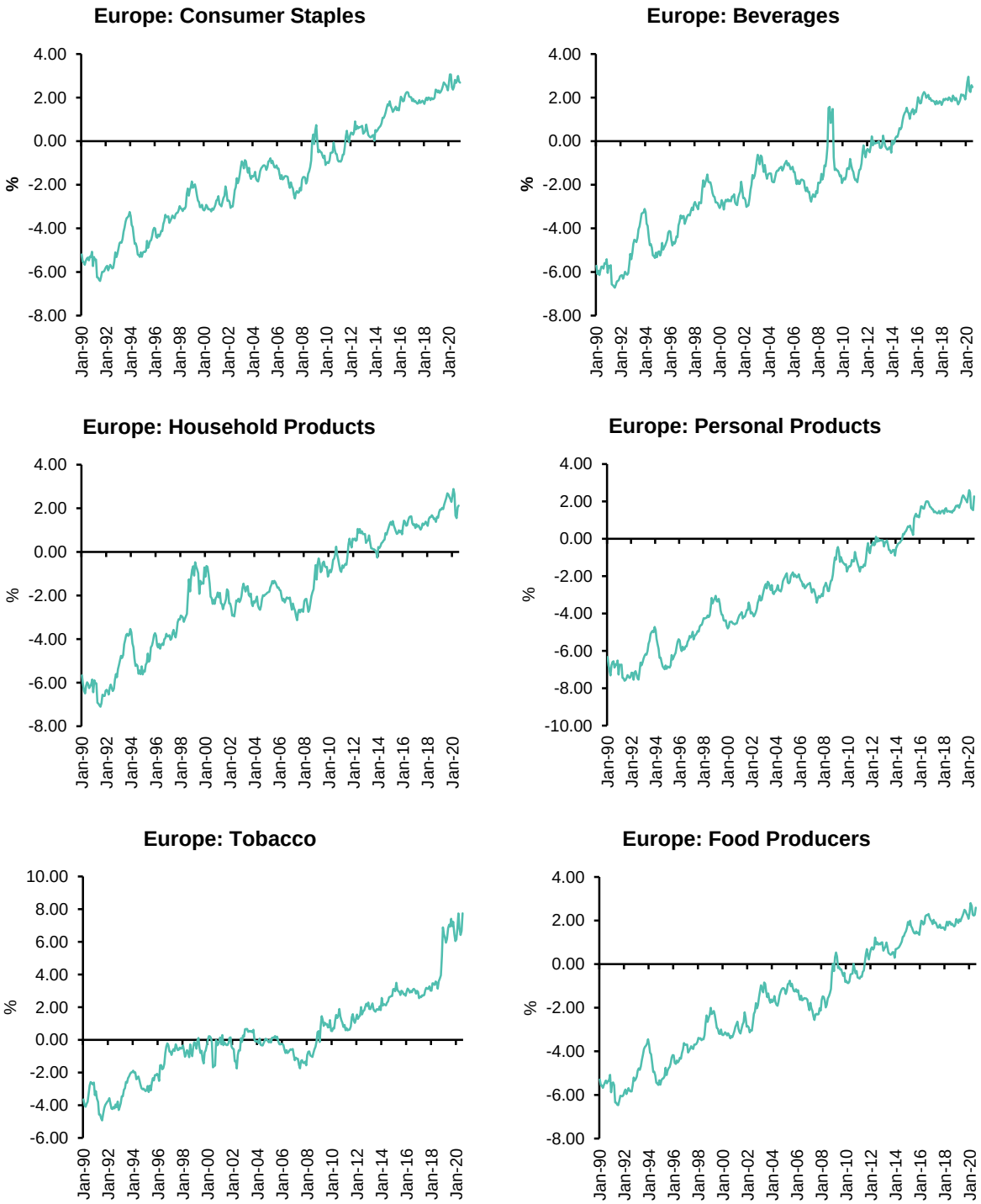
The yield advantage

With government bond yields across the world hitting new lows, the need for yield remains one of the dominant issues in investors' minds. We have recently noted that in an

environment where bond yields are close to zero or even negative, the best source for sustainable yield might actually be in equities (see our "The Best Fixed Income Portfolio Right Now Is…in Equities" chapter). Consumer Staples have always been regarded as a good source of stable and secure dividend yield and as a close substitute for bonds. However, as we show, the sector's advantage over fixed income yields is now as great as ever. Next, we show the spread between dividend yield of Consumer Staples sectors and the 10-year government bond yield. All sectors, both in Europe and the US, now offer a significant dividend yield premium, and in most cases it is the highest spread over the last 30 years.

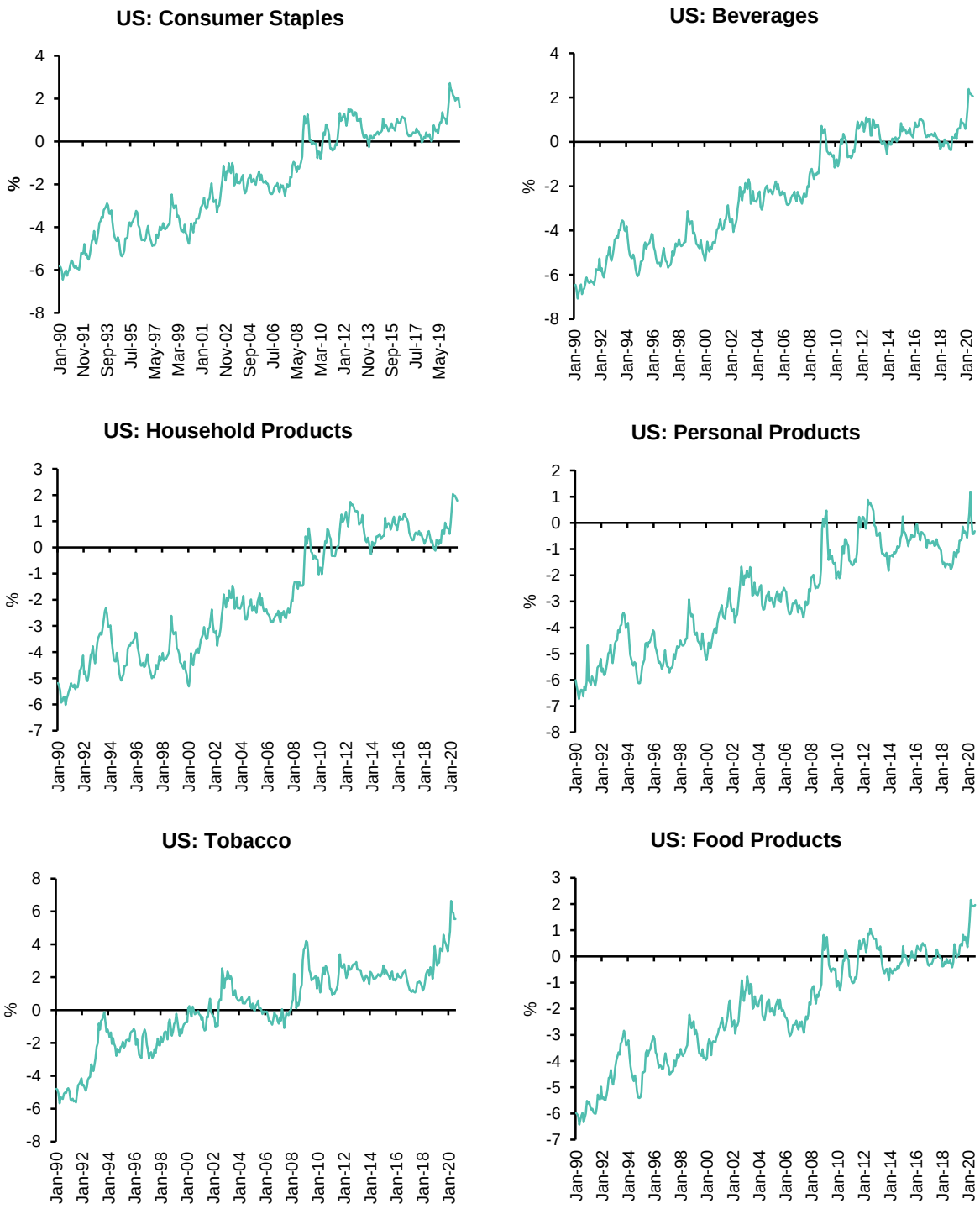
Exhibit 57 and Exhibit 58 show the respective yield spread between the dividend yield from the Staples subsectors in Europe and the US and the corresponding 10-year bond yield. The outlook for dividends is in flux, given the massively uncertain nature of the economic outlook. However, even a 30-50% cut in dividends from here (which we think unlikely) would still yield a spread right at the top of the 30-year range.

EXHIBIT 57: **Europe sector dividend yield to 10-year bond yield**



Source: FactSet, Datastream, and Bernstein analysis

EXHIBIT 58: **US sector dividend yield to 10-year bond yield**



Source: FactSet, Datastream, and Bernstein analysis

What's new about this? After all, the dividend yield minus bond yield charts have been upward sloping for decades. Why does this matter now all of a sudden? Moreover, income achieved in the equity market is not directly comparable to income from 10-year bonds, as

the former is "higher risk." However, we made the case recently that this may be less of a bar now than historically. The need to achieve a positive real return implies that asset owners probably have no choice but to take more risk, the range of return vs. risk that is available in capital markets has simply shifted. There has been a migration along the risk spectrum to take more equity-like risk within fixed income already; also the duration of high-quality fixed income assets is higher than ever before. We covered this in the "Let's Play Twister, Let's Play Risk" chapter.

This matters now in a new way because of the need for asset owners to achieve an absolute level of yield that is positive in real terms, and the danger that stock-bond correlations could turn positive. Moreover, for the US Staples stocks, it is only in 2019 that the yield spread has definitively moved significantly higher.

What if inflation rises?

Another important macroeconomic consideration we have been writing about recently is the possibility of above-average inflation in the medium run. We believe a period of above-average inflation would be supportive for Consumer Staples performance. As noted in our previous research, since 1973, during periods when US inflation was above 3%, Consumer Staples had the most attractive return-to-risk ratio compared to other sectors in those cases.

Note that real estate, which is often thought of as an inflation hedge, as it represents a claim on a "real asset" also has high returns, but with much higher volatility. Moreover, we can also show that the correlation of real estate with equities increases as inflation rises, making it unattractive from a diversification perspective. Also, the medium-term outlook for real estate looks horrible from a fundamental demand perspective.

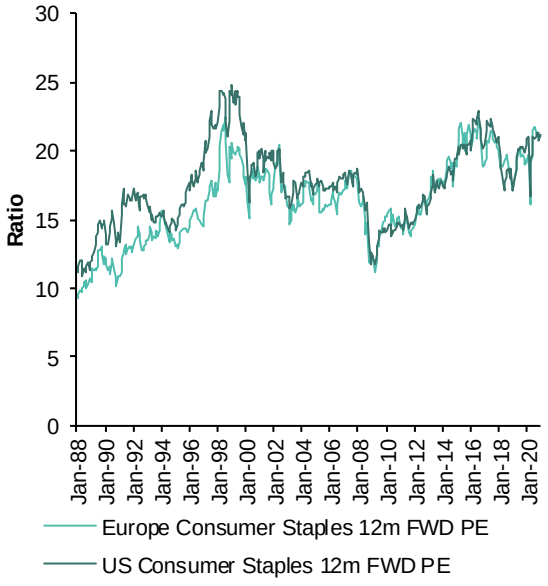
Given the essential nature of the products, if inflation rises we expect Consumer Staples companies to be able to broadly maintain their pricing power (albeit imperfectly) and to pass on any raw material or labor costs to consumers more easily compared with other sectors.

Valuation

The absolute multiples for the Staples sector in the US and Europe are high. But then the multiple of nearly everything is high. Again, in the context of valuing Consumer Staples Equity vs. Credit or government bonds, each relative to their own history, the absolute valuation of Staples is not overly extreme (see Exhibit 59).

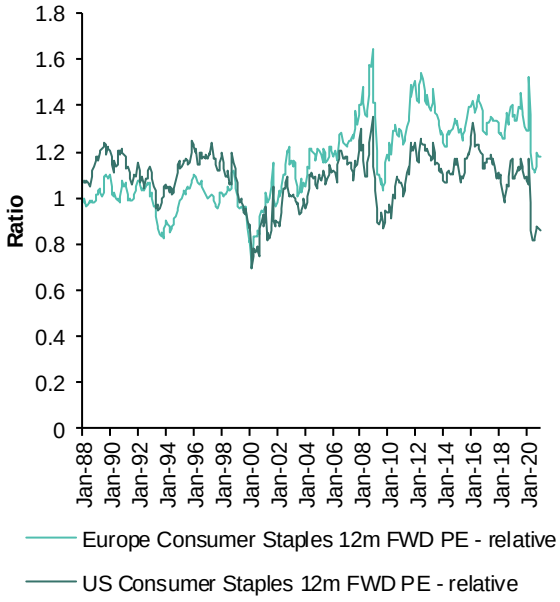
Relative to the broader equity market, the multiples of the Staples sector in the US and Europe are at the bottom end of their respective trading ranges (see Exhibit 60). Note that this is not about expensive Tech stocks! Far from it, this is more about the collapse in forward earnings of cyclicals, which has caused a massive rerating for such companies.

EXHIBIT 59: **Consumer Staples absolute 12-month forward PE**



Source: FactSet and Bernstein analysis

EXHIBIT 60: **Consumer Staples relative 12-month forward PE**



Source: FactSet and Bernstein analysis

Low long-term growth expectations

We are struck by the extremely low long-term growth estimates for the Consumer Staples industries in Europe and the US. In Exhibit 61 and Exhibit 64, we show the long-term EPS growth consensus adjusted for the CPI; the last datapoint shows what the real growth rate would look like if inflation returned to central banks' target of 2%. On this basis, in Europe, the Beverages, HPC, and Tobacco sectors would have the worst historical growth outlook. We are particularly surprised by the extremely negative consensus outlook for Beverages and HPC sectors, as the expectations there have now fallen below the overall European market. While we can see the case for low expectations for the whole market in light of potentially one of the worst recessions in history, we struggle to believe that such defensive and historically recession-proof sectors would offer close to 0% real growth over the long run.

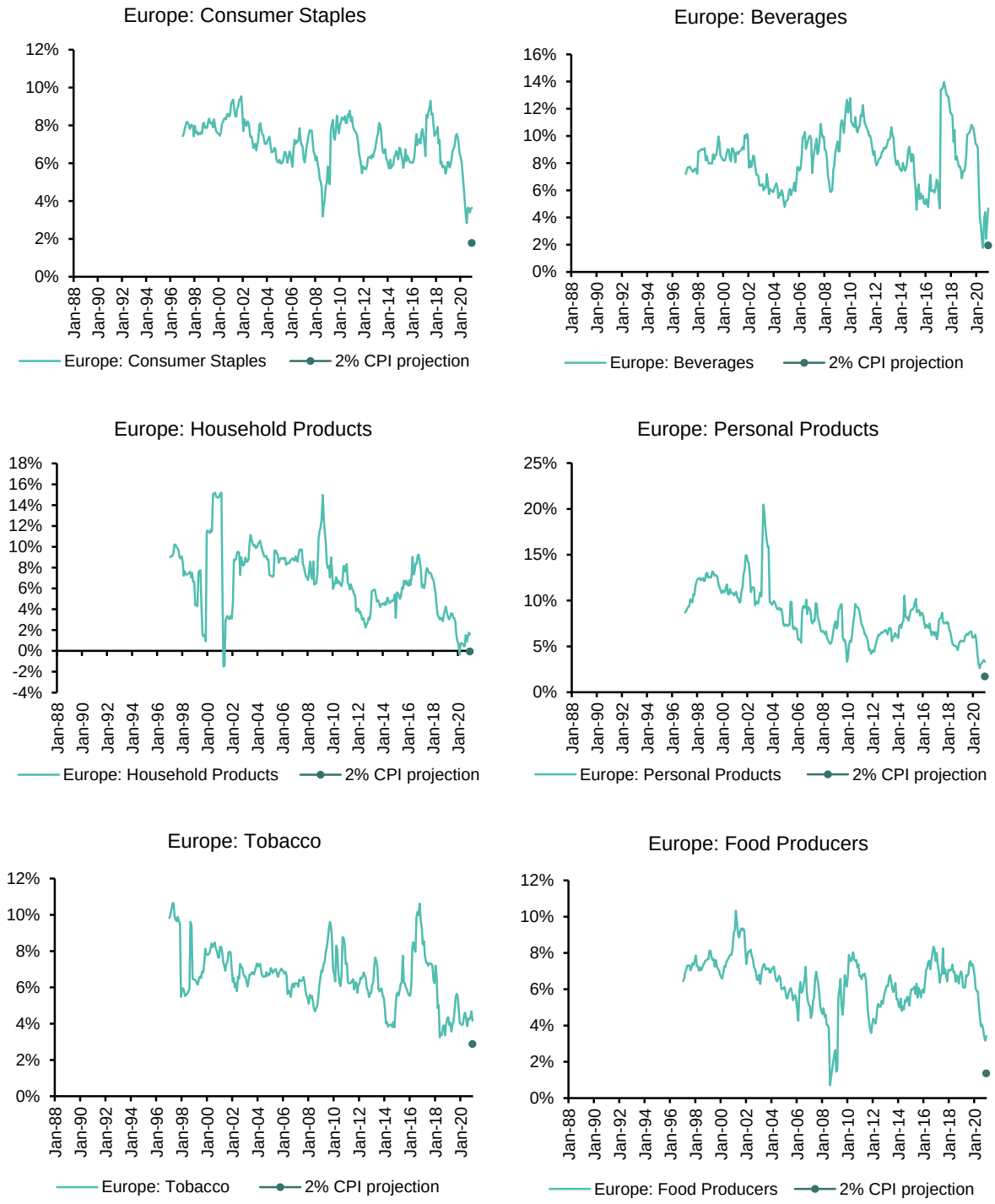
In particular, in the case of beverage alcohol, we see very two clear sources of real long-term growth: (1) volume growth in emerging markets, where per capita consumption is low and (2) trading up in virtually every category and every geography, but especially in premium spirits and to a lesser extent premium beer. Like-pricing is harder to achieve; relatively strong in emerging markets, with fragmented mom-and-pop retailers, and in the US, thanks to the three-tier system, but harder in Europe, with its very concentrated grocery retail landscape. However, beverage alcohol at least has inherently low private label penetration.

In the case of the US Food Producers, we would also be looking for names that are likely to deliver real long-term growth in emerging markets, such as McCormick and Mondelez, or those that are in categories tied to shifting consumer trends in the US (again McCormick, given its alignment with health and wellness trends), or those in the faster-growing snacking category, where even more indulgent snacking options seem to garner relatively

robust pricing power due to low private label exposure (particularly Hershey). Given recent stock moves and valuation, we currently rate Mondelez Outperform and Hershey and McCormick Market-Perform, but these would all be candidates for delivering positive real growth over the longer term. However, we would at present steer clear of those US-centric food names in meal-based and more heavily-processed food categories (General Mills, Kellogg, Campbell Soup, and Smucker's) — they have benefited from the pandemic and the shift to at home food consumption, but may come under more fundamental pressure over the medium to long term, as the consumer and retailer trends that prevailed before the pandemic reassert themselves.

As we said earlier, these long-term growth expectations are generally not high quality, as only a small subset of analysts contributes them. So, one is not going to base the whole investment case on such figures. However, the absolute level of these forecasts is striking for the sectors in question.

EXHIBIT 61: **Consensus forecast long-term real growth rates (Europe)**

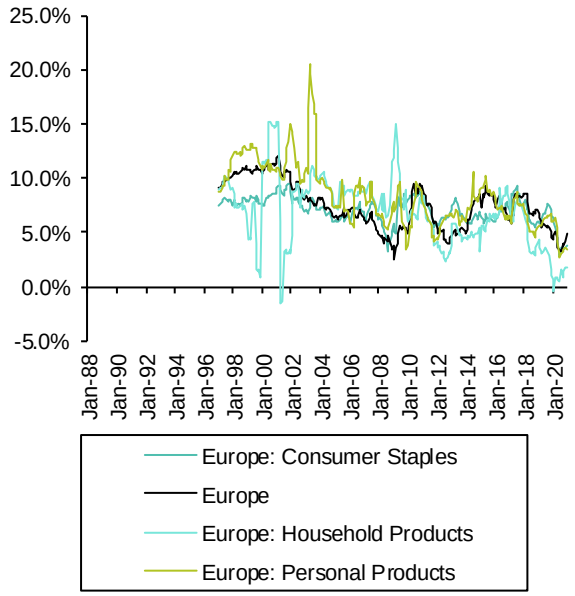


Note: The charts show long-term earnings growth rates adjusted for CPI. The last datapoint is shown assuming 2% CPI.

Source: FactSet, IBES, and Bernstein analysis

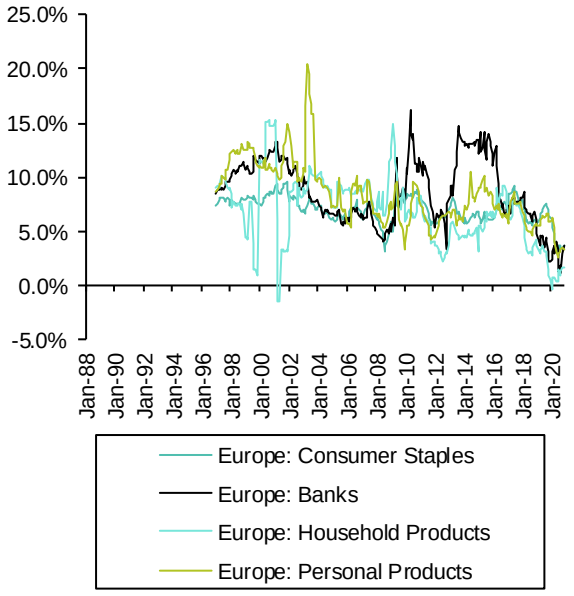
Not only is the projected growth rate of Beverages and HPC lower than the overall market, it is currently lower than that of the Banks (see Exhibit 62 and Exhibit 63). We struggle to see how such a cyclical sector, faced with a prospect of extremely low rates for a very long time as well as an upcoming wave of credit and corporate debt defaults, could warrant an expected growth premium.

EXHIBIT 62: **Consumer Staples real LTG vs. Europe**



Source: FactSet, IBES, and Bernstein analysis

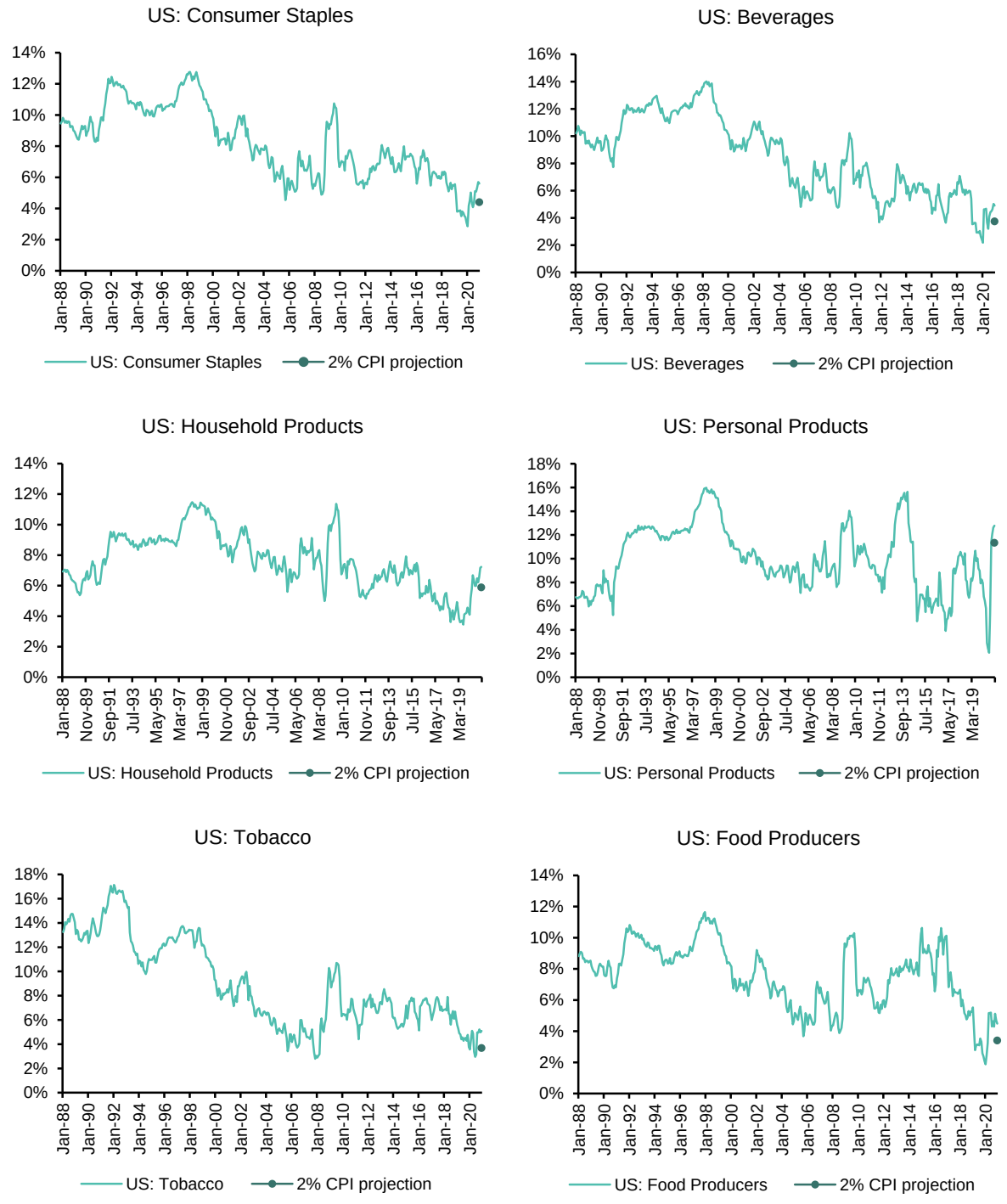
EXHIBIT 63: **Consumer Staples real LTG vs. European Banks**



Source: FactSet, IBES, and Bernstein analysis

While in absolute terms, the real expected long-term growth rates are higher in the US (5.8% vs. 3% in Europe), at the sector level the story is similar to Europe (see Exhibit 64). If US inflation rose to 2%, that would imply a historical low in real growth expectations for the Beverages, Personal Care, and Tobacco sectors.

EXHIBIT 64: **Consensus forecast long-term real growth rates (US)**

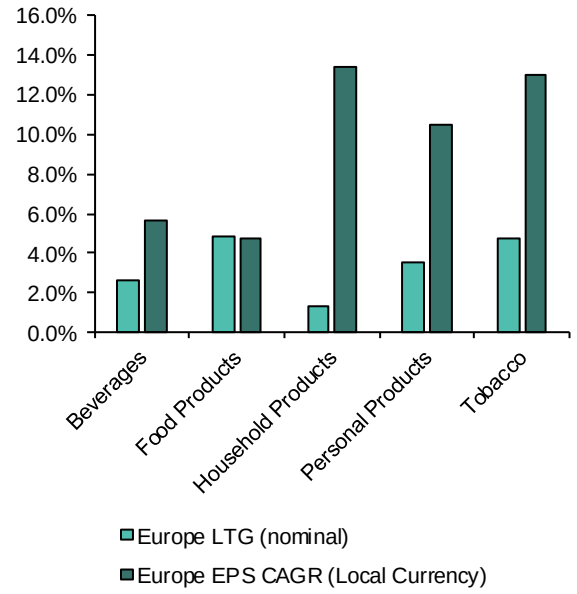


Note: The charts show long-term earnings growth rates adjusted for CPI. The last datapoint is shown assuming 2% CPI.

Source: FactSet, IBES, and Bernstein analysis

In Exhibit 65 and Exhibit 66 we compare the current nominal long-term growth estimates with the actual 12-month forward EPS CAGR since 1995. In almost all cases, the expected growth rates are significantly below the level the sectors managed to achieve historically. While the earnings outlook over the next 12-24 months is extremely uncertain, Consumer Staples has a strong historical record for stable and persistent earnings growth. Thus, in our view, the current consensus expectations set a very low bar for the sector to surprise on the upside on this front.

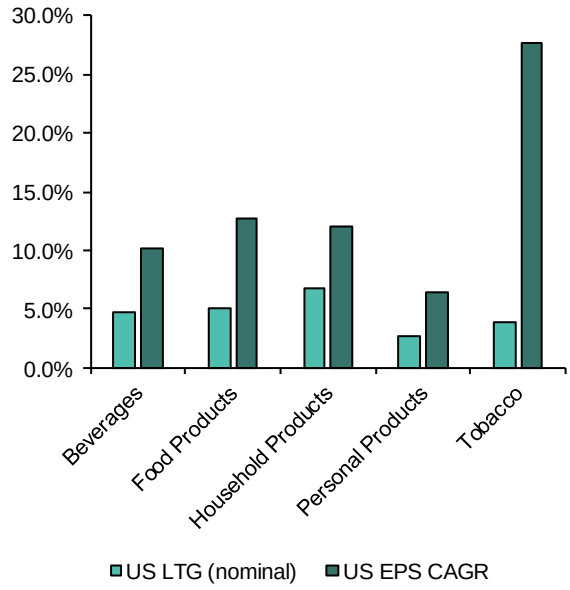
EXHIBIT 65: **Europe long-term growth estimates vs. historical EPS CAGR**



Note: Household product sector CAGR since 1998

Source: MSCI, Datastream, and Bernstein analysis

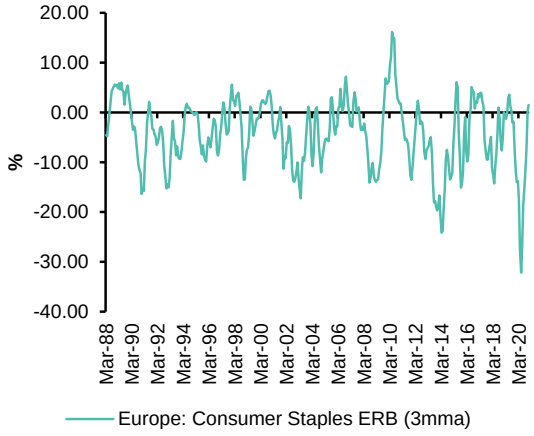
EXHIBIT 66: **US long-term growth estimates vs. historical EPS CAGR**

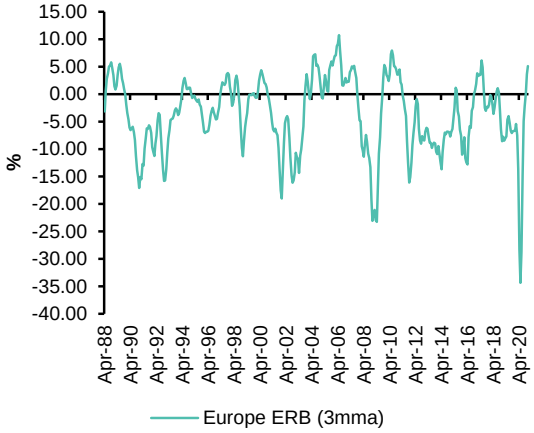


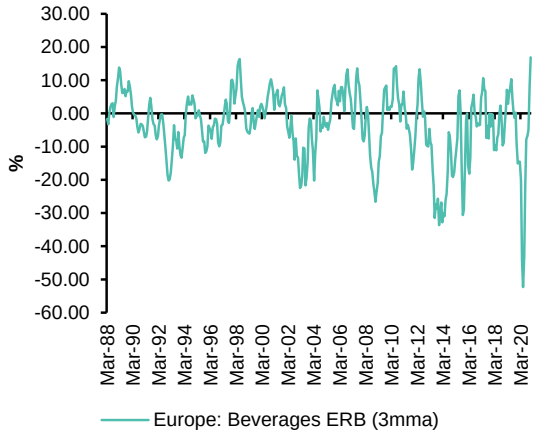
Source: MSCI, Datastream, and Bernstein analysis

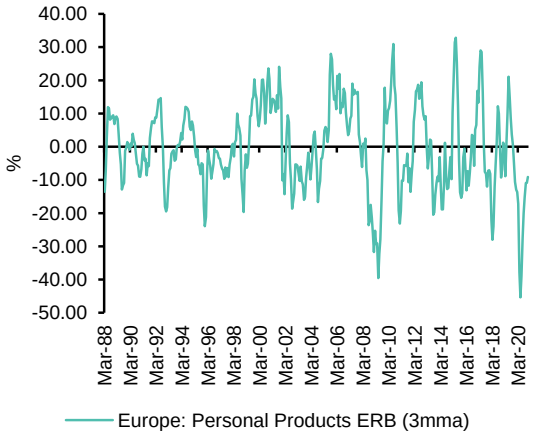
In many cases, near-term earnings estimates have also been substantially downgraded. We show in Exhibit 67 and Exhibit 68 the FY1 and FY2 ERB for Consumer Staples sectors. European and US Beverages stand out as having undergone by far the largest earnings downgrade cycle in the last 30 years. They are closely followed by the Personal Products sector, which has also seen extreme downward earnings revisions recently. Overall, the European Consumer Staples sector has seen more aggressive earnings downgrades vs. the US sector.

EXHIBIT 67: **Europe Consumer Staples ERB (3MMA)**



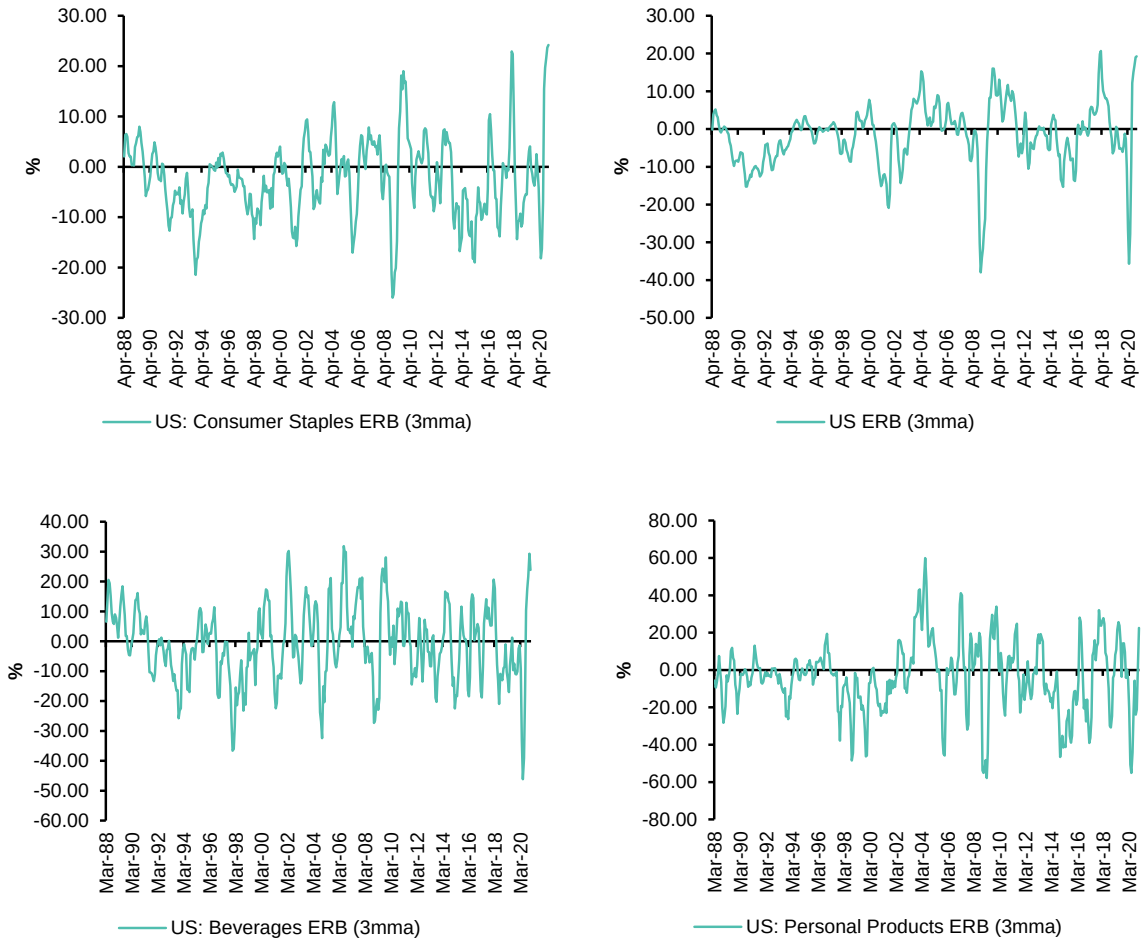






Source: FactSet, IBES, MSCI, and Bernstein analysis

EXHIBIT 68: **US Consumer Staples sector ERB (3MMA)**



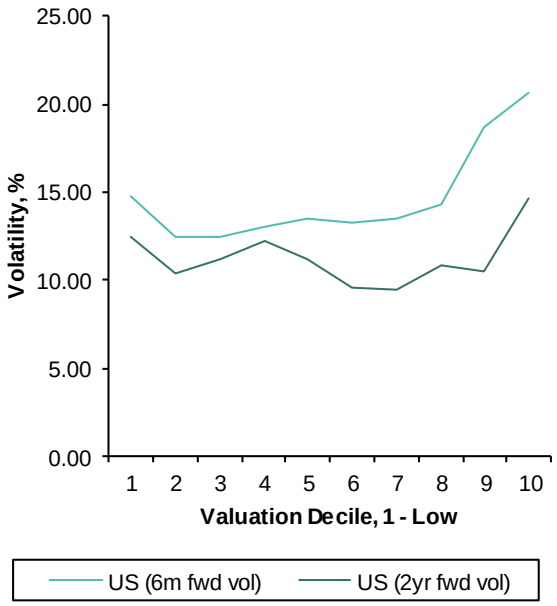
Source: FactSet, IBES, MSCI, and Bernstein analysis

Our outlook for volatility is another supportive factor for the Consumer Staples sector. Historically, valuation multiples in the top two most-expensive deciles range have been associated with a substantial increase in volatility. As the US 12-month forward PE multiple has recently hit an all-time high and policy uncertainty remains extremely elevated, we expect volatility to rise from current levels over the next six months (see Exhibit 69 and Exhibit 70). As we show in Exhibit 71 and Exhibit 72, the sector has a strong record of outperformance during periods of rising volatility both in Europe and the US.

EXHIBIT 69: **US 12-month forward PE multiple**

Source: FactSet and Bernstein analysis

EXHIBIT 70: **Volatility and market valuation**



Note: The chart shows six-month forward realized volatility from market 12-month forward PE being in given ranges, 1990-2015.

Source: FactSet and Bernstein analysis

EXHIBIT 71: **Europe sector performance vs. volatility regimes**

VIX	All Periods	Rise	Fall	Flat		t-stat	
Europe:Capital Goods	0.49	-8.29	4.97	1.67	-2.62	1.78	0.48
Europe:Materials	2.05	0.14	3.96	0.36	-0.35	0.51	-0.47
Europe:Consumer Discretionary	0.28	-1.59	1.03	1.01	-0.70	0.41	0.35
Europe:Consumer Staples	2.59	13.61	-1.21	-0.86	2.02	-1.07	-1.14
Europe:Energy	2.80	11.17	0.88	-2.77	1.36	-0.43	-1.14
Europe:Banks	-0.53	-4.10	1.86	-1.56	-0.77	0.68	-0.34
Europe:Insurance	-0.51	1.08	-1.41	0.24	0.30	-0.24	0.23
Europe:Real Estate	-2.40	-7.57	3.31	-5.63	-0.74	0.62	-0.32
Europe:Healthcare	2.80	11.84	-2.81	5.61	1.51	-1.39	0.66
Europe:Technology	1.24	-6.07	6.13	-0.81	-0.96	0.94	-0.48
Europe:Telecoms	1.64	5.93	0.72	-1.51	0.67	-0.20	-0.85
Europe:Utilities	1.00	8.82	-4.00	2.66	1.80	-1.70	0.53

Source: MSCI, FactSet, Datastream, and Bernstein analysis

EXHIBIT 72: **US sector performance vs. volatility regimes**

VIX	All Periods	Rise	Fall	Flat		t-stat	
USA:Capital Goods	-0.06	-2.97	2.38	-2.29	-0.77	0.82	-0.75
USA:Materials	-1.78	-0.77	-2.12	-2.27	0.18	-0.08	-0.11
USA:Consumer Discretionary	0.36	0.48	1.77	-2.53	0.04	0.64	-1.04
USA:Consumer Staples	1.43	14.76	-4.62	0.80	2.16	-1.61	-0.18
USA:Energy	-0.73	5.90	-1.72	-6.79	1.00	-0.21	-1.03
USA:Banks	2.37	1.97	3.06	1.61	-0.06	0.14	-0.17
USA:Insurance	0.42	-0.28	1.20	-0.32	-0.15	0.20	-0.21
USA:Real Estate	4.48	5.53	4.18	3.85	0.12	-0.05	-0.08
USA:Healthcare	2.48	8.42	-3.22	9.21	1.16	-1.52	1.65
USA:Technology	3.73	-3.32	6.37	5.25	-0.98	0.55	0.33
USA:Telecoms	-2.73	4.47	-5.52	-3.94	1.09	-0.71	-0.28
USA:Utilities	-0.87	6.65	-2.98	-5.06	1.03	-0.46	-0.78

Note: Real estate returns are since 1998.

Source: MSCI, FactSet, Datastream, and Bernstein analysis

THE BEST FIXED INCOME PORTFOLIO RIGHT NOW IS...IN EQUITIES

OVERVIEW

- With US equities trading at an all-time high level of forward earnings, investors face the prospect of unexciting near-term equity returns. Yes, liquidity is clearly triumphing over "fundamentals," and we think the "TINA" argument for having a high equity weight has some validity in the medium term. But the high multiples, at the very least, mean a period of high volatility is likely and also spell a prospect of near-term lower price appreciation. Hence, a focus on income could make sense.

- However, the best "fixed income" portfolio right now might actually be a portfolio of higher-quality equities, where there is some visibility on the dividends. We list US and European companies that we think can fulfil this criterion. Unsurprisingly, this leads to stocks in Healthcare and Consumer Staples sectors, but also selected Commodity cyclicals, Industrial cyclicals, and Utilities.

- The spread of US dividend yields over bond yields is wider than at any point since 1955, which is perhaps the most obvious reason why the income trade may now be in equities. The pushback is that buying income in equites is higher risk. Yes it is, but (1) investors do not realistically have many other options and (2) fixed income investors have already been implicitly taking more equity-like risk for years, e.g., by buying more high-yield credit even as the quality of corporate credit has declined.

- There are perhaps less obvious reasons why seeking income in equities makes more sense now as well. High-grade bonds have higher duration and, hence, more interest rate risk than at any point in the last 50 years. Moreover, if the outcome of the policy response to the pandemic is inflationary, then the strategic weight in equities needs to increase. But at the same time, bonds are likely to become a less effective diversifier of equity risk. We can show that as inflation rises, long-short income strategies in the equity market can be more effective diversifiers of equity risk.

- Ideally a "fixed income replacement" portfolio would really also include gold, carry strategies, and infrastructure. We have detailed this in other research (Fund Management Strategy: An urgent need to replace fixed income). But in this chapter, we just focus on single-equity securities.

- We are not outright bearish on equities in the medium term, as policy support can trump valuations. So, in a broader context, alongside a global equity income portfolio, we are still happy to hold exposure to US equities, US Growth, and Gold along with downside protection in the form of global trades on low volatility and good balance sheet quality.

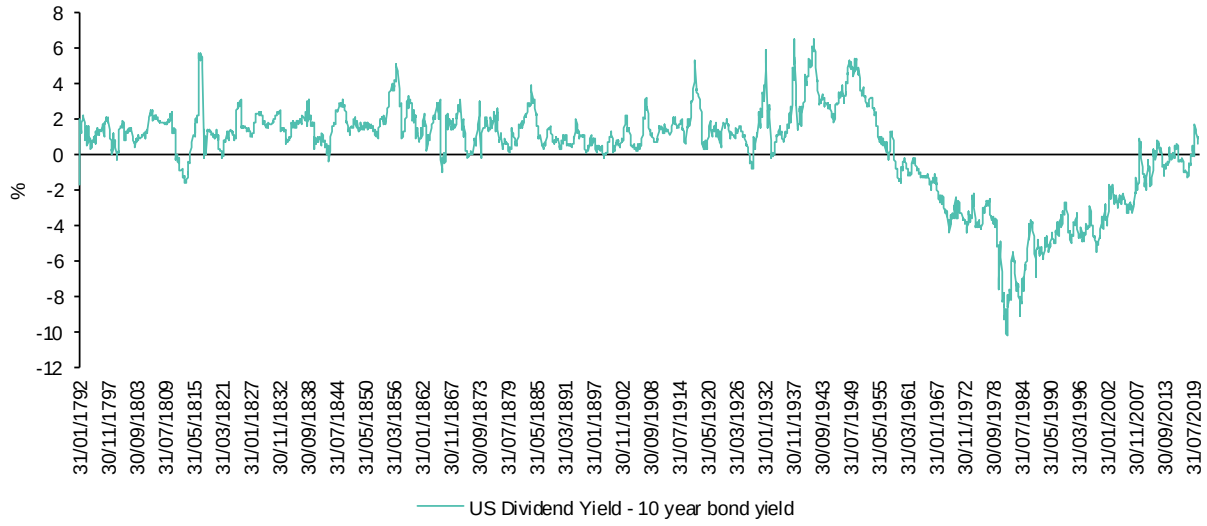
DETAILS

US equities have reached their all-time peak multiple on forward earnings. Yes, there is a case that the "TINA" argument is real and that in a world of low real yields — and especially if inflation rises — this high multiple will not be an impediment to equity returns. In the medium term (horizon longer than one year), there is a lot to be said for investors needing to keep a high allocation to equities. Near term though we think that, at the *very least*, one should expect high volatility in equities and unexciting price-return prospects.

Given a backdrop of less potential for near-term price appreciation, a focus on income seems to make sense. However, high-grade fixed income offers the prospect of (a) negative real returns, (b) is higher duration than it has ever been before, so carries a very large interest rate risk, and (c) might not even be a diversifier of equity risk as stock-bond correlation would likely increase if inflation rises. Meanwhile, for higher-risk debt, despite the recent massive credit rally, we find it hard to get excited about an asset class that is exposed to the largest default cycle in history that is poised on the horizon. The only thing that would support it would be more direct Fed liquidity support, which could indeed well happen, but is the kind of trade on which it is hard to have a competitive edge.

So, what should the source of this income be? Right now, we think the best fixed income portfolio is…a portfolio of large-cap equities where there is a good degree of confidence in the dividend. The relative yielding properties of equities and fixed income have undergone a massive shift, with the dividend yield on equities now exceeding the yield on bonds by more than at any point since 1955 (see Exhibit 73).

EXHIBIT 73: **Dividend yield exceeds bond yield by most since 1955**

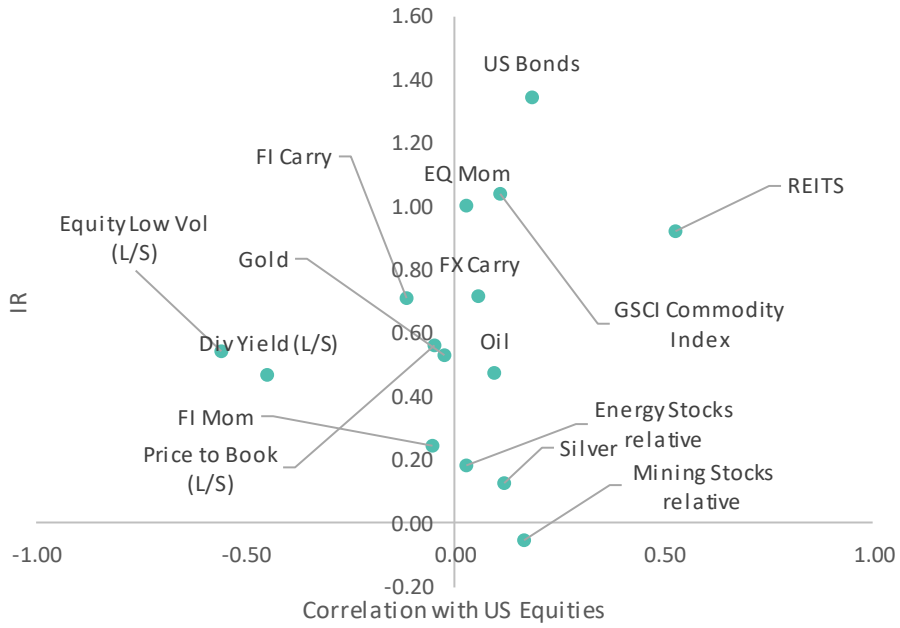


Source: GFD, Datastream, and Bernstein analysis

But this is not just a simple story about the shift in yield between asset classes. The case for owning income via equities is even stronger than that. We have shown in our "Multi-Asset Portfolios in the Crisis and the Outlook for Diversification if Inflation Rises" chapter that if there is an upward risk to inflation as a result of the policy response to the pandemic, then equity income offers one of the most attractive combinations of return-risk and ability to act as a diversifier from equity holdings (see Exhibit 74). In this exhibit, we assume that in a

moderately higher inflation environment (but not with too high inflation), equities become the core holding for many investors. Thus, an important question is: what would the diversifiers be? This exhibit shows the information ratio (IR, return-risk) plotted against correlation with equity markets in periods since the early 1970s when inflation has been greater than 3%. To be sure, this is quite far from the current level, but if this comes about, there are relatively few attractive assets in the top-left-hand corner. The key ones shown here are dividend yield (L/S), equity low volatility (L/S), and gold.

EXHIBIT 74: **IR vs. correlation with equities when inflation >3%, since the early 1970s**



Note: Correlation is calculated as average 12-month rolling correlation with US equities based on monthly returns.
IR is calculated as YOY return of the asset divided by annualized standard deviation.
Returns for Energy, REITS, and Metals & Mining are from 1974, returns for FX Carry are from 1975, and returns for GSCI Commodity index and Oil are from 1971.
Equity PBK, Dividend Yield, Momentum, Low Variance, Low Residual Variance and FI Momentum, FI Carry, and FX Carry factor strategy returns are Long-Short.
Energy and Metals & Mining sector returns are relative to broader US equity market.

Source: AQR, Ken French data library, Datastream, and Bernstein analysis

The focus of this chapter is on individual equities to hold. We note that a true "replacement of fixed income" requires a broader set of assets than just high-yielding equities. As we showed recently in Fund Management Strategy: An urgent need to replace fixed income, a combination of gold, carry strategies, infrastructure, and other assets is needed to offer a full combination of income and equity hedging without long-duration risk. However, for investors who want to focus on a relatively small number of securities, secure dividend payers make a lot of sense.

A pushback would be that as this is an equity portfolio it will have higher volatility than fixed income. So, in what way can it be seen as a replacement? Why would an investor be willing to replace a bond holding with a selection of individual equities? This is true, but:

- The "obvious answer" is that in a low real-return world, investors maybe simply cannot avoid taking on more risk.

- The less obvious answer is that in fact, fixed income investors have already been moving in this direction of effectively taking more equity-like risk over the last decade anyway by evolving to lower-grade credits, EM debt, and private debt, even as the average quality of corporate credit declined.

This is all very well, but 2020 has witnessed a stark fall in dividend payments. There has even been a serious discussion about whether it is socially acceptable for corporates to make distributions to investors in the middle of a crisis of this scale. Any attempt to form a portfolio of income stocks to hold for several years has to involve a high bar for dividend sustainability.

We have long used FCF dividend cover as the starting point for metrics of dividend sustainability. We update our recent work on dividend sustainability, in Portfolio Strategy: Will there be any dividends left? We think high FCF yield in combination with a high and historically stable dividend, and avoiding low balance sheet quality can be used for sectors with more stable cash flows (Healthcare and Consumer Staples). For cyclicals, given the still very uncertain nature of the next 12 months, we would prefer to add cash coverage of expenses as an additional metric to the screening metrics already mentioned. For Utilities, we select the highest FCF dividend cover stocks within the sector.

We choose to exclude Financials from this. For one, they don't fit into a comparable FCF-yield or cash-burn type of approach, but more fundamentally we worry about the prospect for dividends from the sector. In Europe regulators have taken a tougher line on dividends; but also more generally, while there may be individual stocks that can be exceptions, with rates likely locked low and a large default cycle still to come, we think that sustainable dividends might be better sought elsewhere.

We list the companies that pass this screen in Exhibit 75 to Exhibit 77. It is this portfolio that we think might just be the best "fixed income" portfolio right now. Ideally, we would hold this as part of a broader portfolio that included exposure to US equities, US Growth, gold, and low volatility.

EXHIBIT 75: **Non-cyclical sectors – Sustainable Dividend screen**

Europe Non-Cyclicals

Sedol	Sector	Company	PE (12 fwd)	DY	FCF Yield	DY (12m fwd)	FCF Yield (12m fwd)	Bernstein Analyst Rating	(Cash+credit)/ SGA+interest exp.)
473249	COMMUNICATIONS	TELENOR	14.0	6.0	10.1	6.4	10.3		0.51
483477	COMMUNICATIONS	VIVENDI	21.0	2.3	5.3	2.5	3.7	O	0.43
457270	COMMUNICATIONS	BOLLORE	23.7	1.8	29.0	1.8	15.1		7.21
712387	CONSUMER STAPLES	NESTLE	22.9	2.6	3.8	2.8	3.9	O	0.34
028758	CONSUMER STAPLES	BRITISH AMERICAN TOBACCO	8.1	7.8	12.9	8.2	12.4		0.65
416921	CONSUMER STAPLES	CARLSBERG B	21.7	2.2	4.4	2.5	5.4	O	0.24
506921	HEALTHCARE	BAYER	7.8	5.8	7.4	4.1	2.2	O	0.23
092528	HEALTHCARE	GLAXOSMITHKLINE	11.6	6.0	9.0	5.7	7.8		0.31
567173	HEALTHCARE	SANOFI	12.4	4.0	6.9	4.2	7.0	O	0.60
711038	HEALTHCARE	ROCHE HOLDING GENUSS	14.8	2.9	6.5	3.1	6.2	O	0.48
BHC8X9	HEALTHCARE	NOVO NORDISK B	22.5	2.0	5.0	2.2	4.1	O	1.92

US Non Cyclicals

Sedol	Sector	Company	PE (12 fwd)	DY	FCF Yield	DY (12m fwd)	FCF Yield (12m fwd)	Bernstein Analyst Rating	(Cash+credit)/ SGA+interest exp.)
20030N10	COMMUNICATIONS	COMCAST CORP A (NEW)	17.9	1.8	6.9	2.0	5.9	O	0.48
71817210	CONSUMER STAPLES	PHILIP MORRIS INTL	15.3	5.8	7.3	5.9	6.7	M	1.76
02209S10	CONSUMER STAPLES	ALTRIA GROUP	9.4	8.4	10.7	8.6	9.9	O	1.47
44045210	CONSUMER STAPLES	HORMEL FOODS CORP	27.1	2.1	3.0	2.2	3.1		2.72
49436810	CONSUMER STAPLES	KIMBERLY-CLARK CORP	17.4	3.2	5.5	3.4	5.9	M	0.93
42786610	CONSUMER STAPLES	HERSHEY CO (THE)	23.2	2.1	4.7	2.2	3.4	M	1.15
18905410	CONSUMER STAPLES	CLOROX CO	25.2	2.2	5.5	2.3	3.3	M	1.12
17134010	CONSUMER STAPLES	CHURCH & DWIGHT CO	28.9	1.1	4.4	1.2	4.2		0.81
G5960L10	HEALTHCARE	MEDTRONIC PLC	25.0	2.0	3.0	2.0	3.9	O	1.12
47816010	HEALTHCARE	JOHNSON & JOHNSON	17.4	2.6	4.4	2.6	5.2	O	0.85
7588710	HEALTHCARE	BECTON DICKINSON	19.9	1.3	3.8	1.5	4.5		0.87
91324P10	HEALTHCARE	UNITEDHEALTH GROUP	19.0	1.4	6.0	1.4	5.9	O	0.60
12665010	HEALTHCARE	CVS HEALTH	9.3	2.9	14.1	2.7	10.7	O	0.42
03073E10	HEALTHCARE	AMERISOURCEBERGEN	11.8	1.8	9.2	1.6	7.8		2.46

Note: These are stocks in non-cyclical sectors that have paid dividends consistently over the last 10 years in the US and in seven of the last 10 years in Europe, are in the two highest regional quintiles on high FCF and DY combined, and are not in the worst quintile on balance sheet quality. The benchmark universes that we used were the MSCI US and the largest 300 stocks in the MSCI Europe, both excluding Financials.
O= Outperform rating, M= Market-Perform rating, U = Underperform rating. Further details of the research and important disclosures of the covered securities are available on Bernstein Research website: www.bernsteinresearch.com.

Source: MSCI, FactSet, and Bernstein analysis

EXHIBIT 76: **Cyclical sectors – Sustainable Dividend screen**

Europe Cyclicals

Sedol	Sector	Company	PE (12 fwd)	DY	FCF Yield	DY (12m fwd)	FCF Yield (12m fwd)	Bernstein Analyst Rating	(Cash+credit)/ SGA+interest exp.)
482477	INDUSTRIALS	SGS	32.2	3.0	4.6	3.0	3.2		1.04
572797	INDUSTRIALS	SIEMENS	20.5	3.3	6.4	3.0	4.8		1.00
B2B0DG	INDUSTRIALS	RELX (GB)	20.0	2.6	5.4	2.5	5.0	M	3.15
BYPC1T	INDUSTRIALS	ASSA ABLOY B	23.2	1.9	5.0	1.9	4.3		4.40
B11ZRK	INDUSTRIALS	LEGRAND	23.0	1.8	5.0	1.8	4.1		1.20
461785	INDUSTRIALS	DEUTSCHE POST	16.1	2.8	8.6	3.4	5.3	O	0.83
B142S6	INDUSTRIALS	KUEHNE & NAGEL INTL	29.7	2.0	6.4	2.1	3.8	M	1.20
BH0P3Z	MATERIALS	BHP GROUP (GB)	11.4	4.6	6.3	5.0	7.8	O	3.34
071887	MATERIALS	RIO TINTO PLC (GB)	10.2	5.4	7.8	6.3	7.9	M	8.46
512067	MATERIALS	HEIDELBERGCEMENT	8.9	1.0	12.5	3.2	11.2		0.99
416343	TECHNOLOGY	CAPGEMINI	16.6	1.1	7.5	1.6	6.4		1.22

US Cyclicals

Sedol	Sector	Company	PE (12 fwd)	DY	FCF Yield	DY (12m fwd)	FCF Yield (12m fwd)	Bernstein Analyst Rating	(Cash+credit)/ SGA+interest exp.)
26875P10	ENERGY	EOG RESOURCES	25.3	3.0	5.9	2.6	5.6	O	5.65
85811910	MATERIALS	STEEL DYNAMICS	13.1	2.7	3.2	2.6	4.1		4.99
67034610	MATERIALS	NUCOR CORP	16.9	3.0	7.1	2.9	3.3		3.70
94106L10	INDUSTRIALS	WASTE MANAGEMENT	26.3	1.8	4.3	2.0	4.5		3.23
05301510	TECHNOLOGY	AUTOMATIC DATA PROCESS	31.4	2.1	3.8	2.2	4.0		3.17
30213010	INDUSTRIALS	EXPEDITORS INTL OF WASH	23.3	1.1	4.0	0.9	4.1		3.10
14912310	INDUSTRIALS	CATERPILLAR	25.2	2.3	4.4	2.3	4.4	M	2.53
52605710	CONSUMER DISCRETIONARY	LENNAR CORP A	9.7	1.3	18.4	1.3	6.4		2.50
91131210	INDUSTRIALS	UNITED PARCEL SERVICE B	20.8	2.4	4.8	2.6	5.2	O	2.48
43851610	INDUSTRIALS	HONEYWELL INTERNATIONAL	27.3	1.7	3.4	1.8	3.8		2.20
88250810	TECHNOLOGY	TEXAS INSTRUMENTS	28.1	2.5	3.4	2.4	3.5	M	2.20
57772K10	TECHNOLOGY	MAXIM INTEGRATED PRDCTS	30.4	2.2	3.2	1.2	3.6		2.09
36955010	INDUSTRIALS	GENERAL DYNAMICS CORP	13.2	3.0	6.3	3.1	7.2	M	2.05
70432610	TECHNOLOGY	PAYCHEX	33.5	2.7	3.5	2.7	3.9		2.04
85450210	INDUSTRIALS	STANLEY BLACK & DECKER	19.3	1.6	5.2	1.7	5.5		2.02
30249130	MATERIALS	FMC CORP	15.9	1.7	4.3	1.7	4.2	M	1.97
45230810	INDUSTRIALS	ILLINOIS TOOL WORKS	27.9	2.2	4.0	2.1	3.6		1.82
69515610	MATERIALS	PACKAGING CORP OF AMER	20.4	2.9	5.4	2.4	4.9		1.59
G8994E10	INDUSTRIALS	TRANE TECHNOLOGIES	28.0	1.5	4.4	1.4	3.4		1.59
27743210	MATERIALS	EASTMAN CHEMICAL CO	14.8	2.8	9.8	2.7	7.0		1.56
45950610	MATERIALS	INTL FLAVORS & FRAGRANCE	18.7	2.8	4.5	2.5	5.3	O	1.36
76075910	INDUSTRIALS	REPUBLIC SERVICES	26.5	1.8	4.2	1.8	4.2		1.27
H8498910	TECHNOLOGY	TE CONNECTIVITY	22.3	1.6	3.6	1.5	4.1		1.27
23102110	INDUSTRIALS	CUMMINS	17.0	2.4	5.5	2.4	5.4	O	1.26
03265410	TECHNOLOGY	ANALOG DEVICES	25.4	1.7	3.4	1.6	3.8	M	1.22
83186520	INDUSTRIALS	SMITH (A.O.) CORP	24.1	1.9	5.2	1.9	4.3		1.22
92974010	INDUSTRIALS	WABTEC CORP	17.2	0.7	5.3	0.6	5.5		1.18
52610710	INDUSTRIALS	LENNOX INTERNATIONAL	26.1	1.1	6.0	1.1	3.1		1.15
77390310	INDUSTRIALS	ROCKWELL AUTOMATION	28.4	1.7	3.5	1.6	3.3		1.12
05361110	MATERIALS	AVERY DENNISON CORP	21.2	1.6	4.2	1.6	4.5		1.07
45920010	TECHNOLOGY	IBM CORP	11.1	5.2	11.8	5.1	7.2	M	0.94
88579Y10	INDUSTRIALS	3M CO	19.0	3.4	6.3	3.6	5.9		0.83

Note: These are stocks in Cyclicals sectors that have paid dividends consistently over the last 10 years in the US and in seven of the last 10 years in Europe, are in the two highest regional quintiles on high FCF and DY combined, are not in the worst quintile on balance sheet quality, and have good coverage on a measure of cash on the balance sheet + available credit lines to SGA + Interest expenses. The benchmark universes we used were the MSCI US and the largest 300 stocks in the MSCI Europe, both excluding Financials.
O= Outperform rating, M= Market-Perform rating, U = Underperform rating. Further details of the research and important disclosures of the covered securities are available on Bernstein Research website: www.bernsteinresearch.com.

Source: MSCI, FactSet, and Bernstein analysis

EXHIBIT 77: **Utilities – Sustainable Dividend screen**

Europe Utilities - High FCF Dividend Cover Quintile

Sedol/Cusip	Sector	Company	DY	FCF Dividend Cover	DY (12m Fwd)	FCF Yld (12m Fwd)	Bernstein Rating
403187	UTILITIES	VEOLIA ENVIRONNEMENT	2.5	3.7	4.7	6.3	
466160	UTILITIES	VERBUND A	1.0	2.9	1.1	0.6	
B3B8D0	UTILITIES	SUEZ	2.8	1.9	4.1	9.9	

US Utilities - High FCF Dividend Cover Quintile

Sedol/Cusip	Sector	Company	DY	FCF Dividend Cover	DY (12m Fwd)	FCF Yld (12m Fwd)	Bernstein Rating
92840M10	UTILITIES	VISTRA ENERGY	2.7	7.5	2.8	19.7	
62937750	UTILITIES	NRG ENERGY	3.2	5.8	3.3	15.5	
00130H10	UTILITIES	AES CORP	2.6	1.6	2.4	4.6	

Note: The Utilities sector in the MSCI US universe and the largest 300 stocks in the MSCI Europe index were ranked on the basis of FCF dividend cover. The stocks in the table are the high FCF dividend cover quintile of stocks. Any stocks with a cover of less than one has been removed.
O= Outperform rating, M= Market-Perform rating, U = Underperform rating. Further details of the research and important disclosures of the covered securities are available on Bernstein Research website: www.bernsteinresearch.com.

Source: MSCI, FactSet, and Bernstein analysis

THE FED, THE MARKET, THE VALUE-GROWTH DEBATE, AND INFLATION

OVERVIEW

- Value investors have been waiting for inflation for a decade. We have argued that at least one reason for the 10-year failure of valuation to work as an investment signal has been perennial negative surprises on inflation.

- However, when inflation rises, usually this eventually leads to real yields rising too and yield curves steepening. If real rates do indeed rise, then the case for a historical reallocation into Value on a 1 year+ horizon is strong. However, policy makers may choose to keep real rates locked low. Moreover, Value companies are not at a historical discount just because of cyclical risk aversion, many of them have structurally challenged business models.

- So, the central question of this chapter is: if inflation rises but real rates remain low, should PMs stay with Growth or switch to Value?

- The link between Value and inflation is strong, but "deep Value" stocks, i.e., those that are cheap on price-to-book also usually need rising real yields and steepening curves, e.g., Banks. For the Value factor overall, if anything, the yield curve and real rates may matter more than inflation.

- There are other "Value" stocks that can still perform well when inflation is high but rates stay low: Utilities, Real Estate and, possibly, Insurance. But their Value characteristics are more in their role as income as a factor, rather than cyclical Value.

- There has been an allocation into cash over the last three months of historical proportions. This makes the risk of an inflationary outlook even more critical, as this cash will presumably need to be reallocated.

- Finally, we recently posed the question "Has the Fed gone too far?", but what if really the Fed hasn't gone far enough? There is a possibility that the Fed's balance sheet may need to be significantly expanded beyond the current level to deal with the social consequences of the virus (the scale of the recession still to come, the level of unemployment, the increase in inequality, and the inter-generational wealth issues created by this episode). If that came to pass, then maybe valuation of the market simply doesn't matter? We discuss the outlook for the market and allocations in such a scenario.

DETAILS

If inflation does come back over 2021, what does it mean for allocation within equities? A central question for equity allocation is what this means for Value vs. Growth. In theory, the

answer is easy. We have made the point before[15] that what Value investors have been waiting for, for years, is a little inflation. As we show in Exhibit 78, over the very long run, since 1937, there has been a close link between inflation and Value, and periods of rising inflation have historically been supportive of Value factor performance. However, this assumes that one can hold a factor for multiple years and that rising inflation is part of a "Normal" cycle that sees growth and eventually sees real rates rise, and the yield curve steepen. What if those latter conditions don't apply this time?

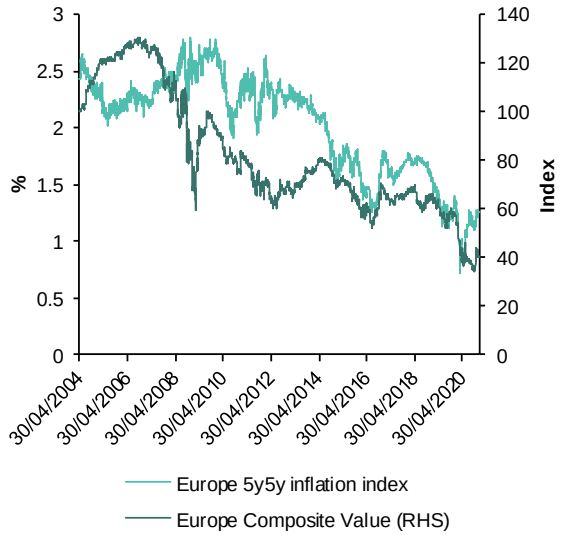
EXHIBIT 78: **US Value (price-to-book) performance vs. inflation**

Source: Ken French data library, Robert Shiller's database, Datastream, and Bernstein analysis

That inflation link has also held more recently and over shorter horizons. The performance of Value has closely followed inflation expectations, both in Europe and the US. But again, there is likely an assumption here that movements in inflation are linked to prospects of future growth (see Exhibit 79 and Exhibit 80).

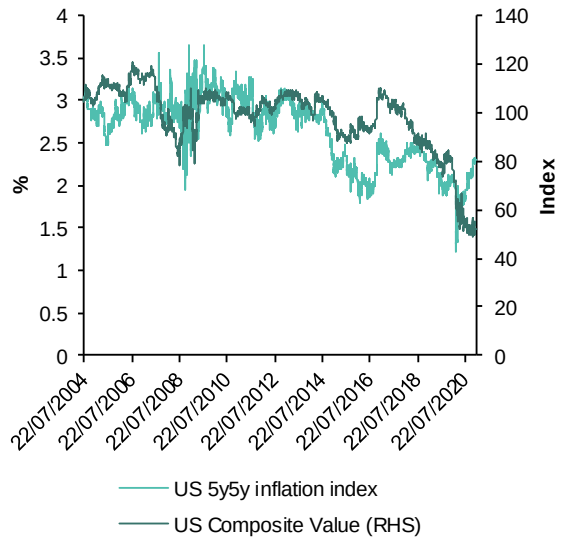
[15] Global Quantitative Strategy: Has Value met its Waterloo?

EXHIBIT 79: **Europe Composite Value vs. 5y5y**



Source: Bloomberg, FactSet, and Bernstein analysis

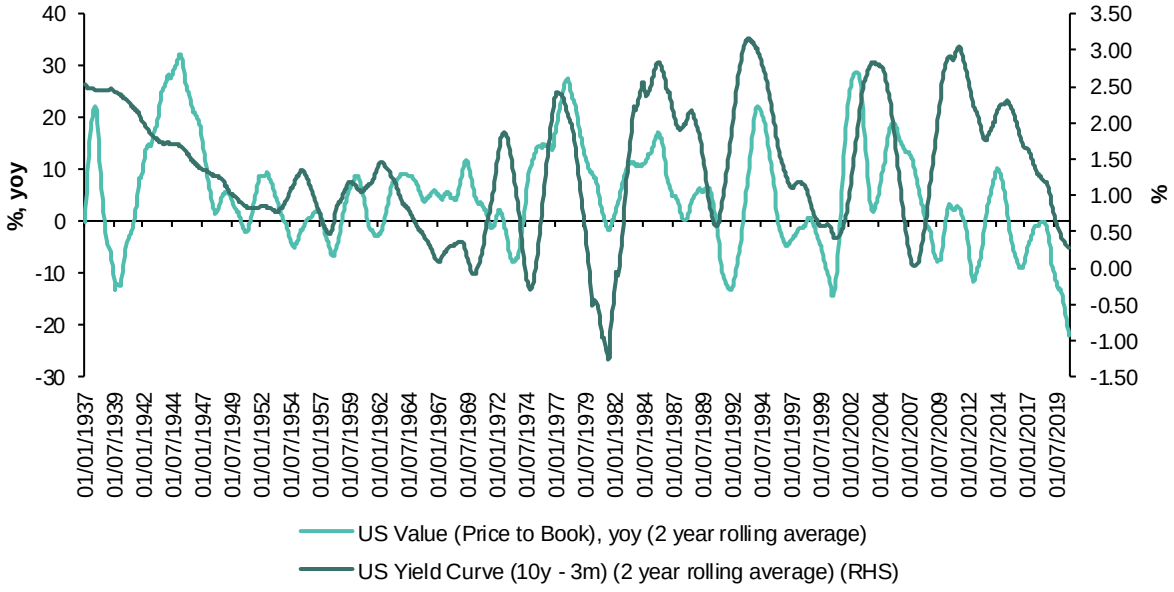
EXHIBIT 80: **US Composite Value vs. 5y5y**



Source: Bloomberg, FactSet, and Bernstein analysis

In parallel to the relationship with inflation, Value as a factor has also tended to respond to shifts in the yield curve. This relationship over the long run is shown in Exhibit 81.

EXHIBIT 81: **US Value performance (price-to-book) vs. US yield curve (10-year to three-month)**



Source: GFD, Datastream, and Bernstein analysis

However, at the same time as inflation is rising it seems likely that central banks will keep real rates at a very low level. A move to lock the yield curve and low rates would also amplify the case for long duration in the equity market via Growth assets. If the far-off cash flows

on Growth assets continue to be discounted at a very low rate, then their NPV will remain elevated. This suggests that inflation in the presence of a different kind of policy response may not be as supportive of Value assets over all others.

To determine the relative significance of the two factors on Value performance, we regressed smoothed US Value factor returns against smoothed inflation and yield curve series from January 1937 to May 2020. We added a dummy variable for the period around WWII when the yield curve was kept flat by the Fed. As shown in Exhibit 82, both the CPI and the yield curve variables are highly statistically significant in determining the performance of the Value factor (note this is a contemporaneous regression not a predictive one, so one is required to make a forecast about future policy to use it). While the inflation coefficient has a higher t-stat, we note that in key historical periods, like the early 1980s and 1990s when inflation and the yield curve were giving conflicting signals, ultimately it was the shape of the yield curve that usually prevailed.

EXHIBIT 82: **US Value (price-to-book) performance vs. inflation and yield curve**

R-sq	**29%**	
Variable	**Coeff**	**t-stat**
Intercept	-3.23	-4.63
CPI	1.01	10.13
Yield Curve	2.68	8.48
Dummy (1942-1947)	13.62	13.03

Note: The table shows results for a regression of US Value YOY return smoothed over two years against US CPI and Yield Curve (also smoothed over two years) from 1937 to 2020.

Source: GFD, Datastream, and Bernstein analysis

We also think it's important to note that the yield curve impact might be due to two different reasons. A steepening yield curve is often seen as a signal for positive future growth. Thus, it could be that future growth is really a common cause of both the yield curve impact and Value performance. Alternatively, it could be that the yield curve steepening or flattening has a direct impact on the Value factor. To disentangle the two effects, we ran a regression of US Value YOY returns against the yield curve and two-year forward S&P 500 EPS growth from 1936 to 2020 (we account for the GFC structural break by a dummy variable). As shown in Exhibit 83, even when including future earnings growth the yield curve coefficient remains highly statistically significant (t-stat of 4.8). Thus, in our view, it shows the yield curve has an impact on Value factor performance over and above its role in signaling future earnings growth.

EXHIBIT 83: **US Value (price-to-book) performance vs. yield curve and future earnings growth**

R-sq	3.0%	
Variable	**Coeff**	**t-stat**
Intercept	2.38	2.84
Yield Curve	2.41	4.78
2 year fwd EPS	0.00	-0.53
Dummy (2008-2011)	-11.36	-4.59

Source: GFD, Datastream, and Bernstein analysis

This analysis suggests that the yield curve and inflation have tended to have a direct influence on the performance of the Value factor overall. Another angle is to think about how the composition of Value has changed over time from a sectoral perspective (see Exhibit 84).

We took a closer look at the interplay between high inflation and real rates. For this, we further divided the periods when inflation was above 3% into periods when real rates were above/below historical average. The key observations are as follows:

- **Consumer Staples** and **Healthcare** have outperformed in both high- and low-rate environments; however, their performance was stronger when high inflation was accompanied by high rates.
- **Real Estate** also outperformed in both environments, but its performance was stronger when real rates were low. This might make it look like a good holding for the current environment. However, its absolute volatility is high in such periods and, more worryingly, we can show that its correlation to equity returns increases when inflation is high, so it is a less-good diversifier.
- **Banks**, **Consumer Cyclicals**, and to a lesser extent **Insurance**, do best when both high inflation and high rates occur.
- **Utilities** outperformed in low-rate periods but lagged when both inflation and real rates were high.
- Similarly, **Energy** outperformed strongly when real rates were low but lagged in periods of high inflation and high rates.

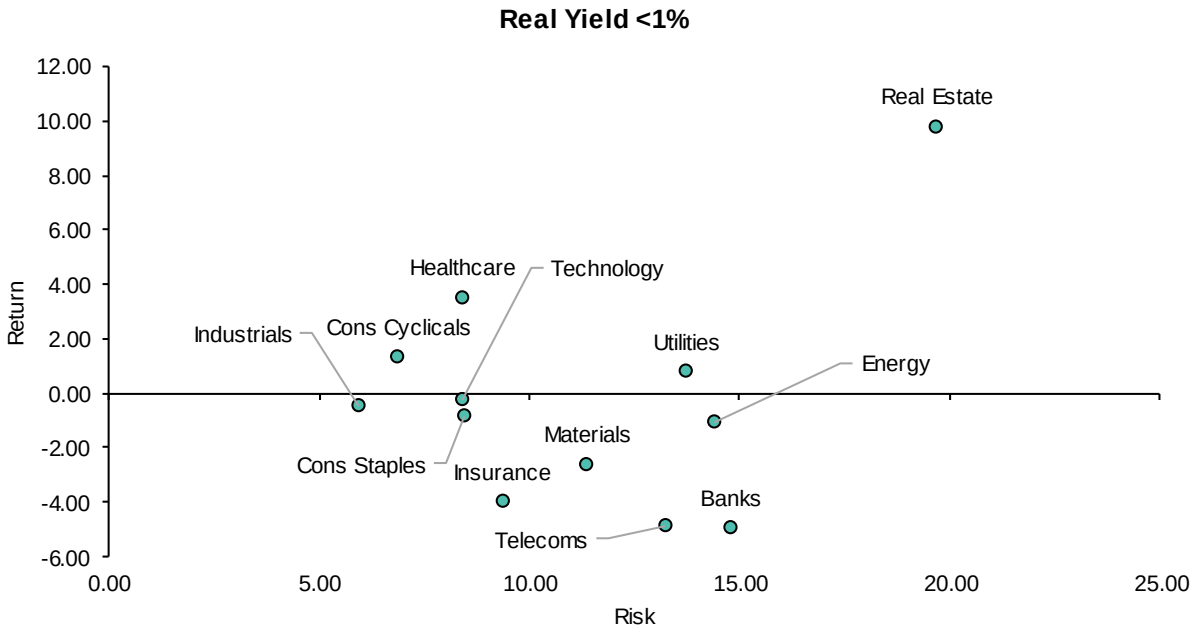
EXHIBIT 84: **Relative sector performance when inflation >3% and real rates are below average**

Year	CPI	Real Rate	Real Estate	Energy	Utilities	Healthcare	Industrials	Consumer Staples	Telecoms	Insurance	Technology	Basic Materials	Banks	Consumer Cyclicals
1974	11.01	-3.61	-49.29	1.83	1.80	8.53	-12.70	2.26	23.58	-0.46	-10.47	3.52	-8.77	-13.17
1975	9.14	-1.38	72.61	-8.78	8.90	-11.75	4.57	0.39	-8.96	-12.86	-0.46	14.76	-12.69	24.22
1976	5.77	1.04	-22.56	10.47	4.42	-13.35	7.69	-7.25	10.26	8.61	2.85	-0.15	7.06	-2.61
1977	6.47	1.31	7.14	4.89	14.86	1.25	0.78	4.18	8.30	10.74	2.39	-19.51	-0.04	-9.97
1978	7.63	1.52	-0.26	4.11	-12.03	2.12	12.60	0.33	-1.45	5.38	7.87	-3.59	2.02	-8.78
1979	11.25	-0.92	58.21	27.39	-5.31	-3.96	3.18	-9.38	-14.89	15.86	-9.19	12.74	-1.29	-7.10
1980	13.50	-1.07	16.91	34.75	-12.24	-4.82	7.18	-11.14	-20.83	-13.24	-6.41	-3.83	-5.52	-8.33
2005	3.37	1.02	5.70	26.03	9.46	1.72	-2.81	-0.59	-9.86	4.38	-2.28	-2.51	-4.57	-11.30
2006	3.22	1.49	17.80	5.71	4.21	-9.60	-2.04	2.00	15.73	-3.14	-4.77	1.73	1.08	-1.18
2008	3.81	-1.56	-1.95	0.53	7.31	21.21	-4.00	22.37	4.26	-13.98	-9.02	-19.57	-12.52	5.34
2011	3.14	-1.25	6.51	4.71	14.43	8.46	-1.75	10.21	-0.21	-11.63	-2.04	-14.87	-26.41	2.11
Average	**7.12**	**-0.31**	**10.07**	**10.15**	**3.26**	**-0.02**	**1.16**	**1.22**	**0.54**	**-0.94**	**-2.87**	**-2.84**	**-5.61**	**-2.80**
Median	**6.47**	**-0.92**	**6.51**	**4.89**	**4.42**	**1.25**	**0.78**	**0.39**	**-0.21**	**-0.46**	**-2.28**	**-2.51**	**-4.57**	**-7.10**

Source: Datastream and Bernstein analysis

We also examined relative sector performance and risk profile in low real rate environments (see Exhibit 85). Such environments clearly favor Real Estate, Healthcare, and Consumer Cyclical sectors.

EXHIBIT 85: **Sector relative return when real yields are low**



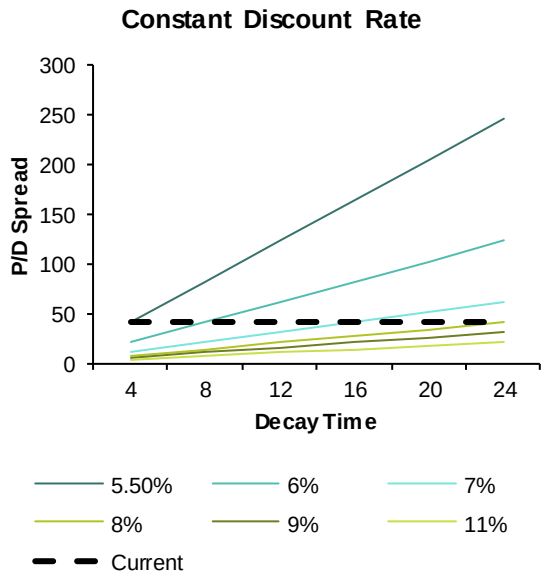
Source: Datastream and Bernstein analysis

What about the Growth factor? We have previously shown that the "fade rate" with which companies with superior levels of profitability lose their edge is slowing. The probability of a company remaining in the highest profitability quintile five years forward is now much higher compared with the early 1990s.

We can also show using a theoretical dividend-discount model that this persistence of profitability, coupled with extremely low interest rates, which make cash flow far in the future much more valuable, can be used to justify the current very high spread in valuation between high- and low-growth stocks.

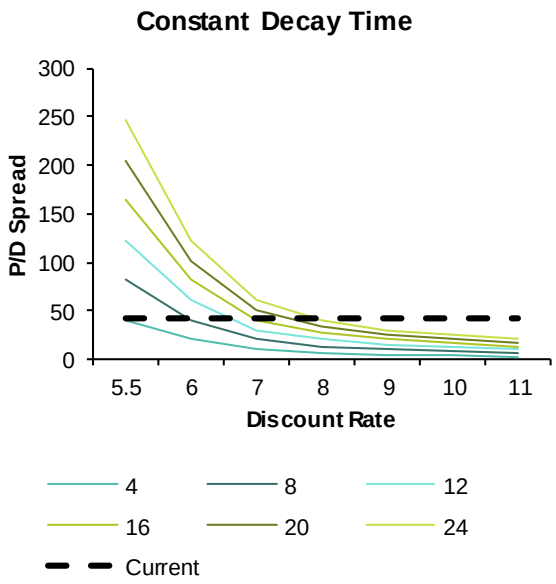
Exhibit 86 shows the dividend yield spread between high- and low-growth companies as a function of fade rates and plot lines of constant discount rates. Exhibit 87 shows this expressed as a function of discount fade rates and plot lines of constant discount rates. The bottom line is that with high persistence in profitability, low discount rates can justify a very high spread in valuation (for more details see: Portfolio Strategy: What is a Growth stock today?).

EXHIBIT 86: **Theoretical justified yield spread as function of fade rates**



Source: FactSet and Bernstein analysis

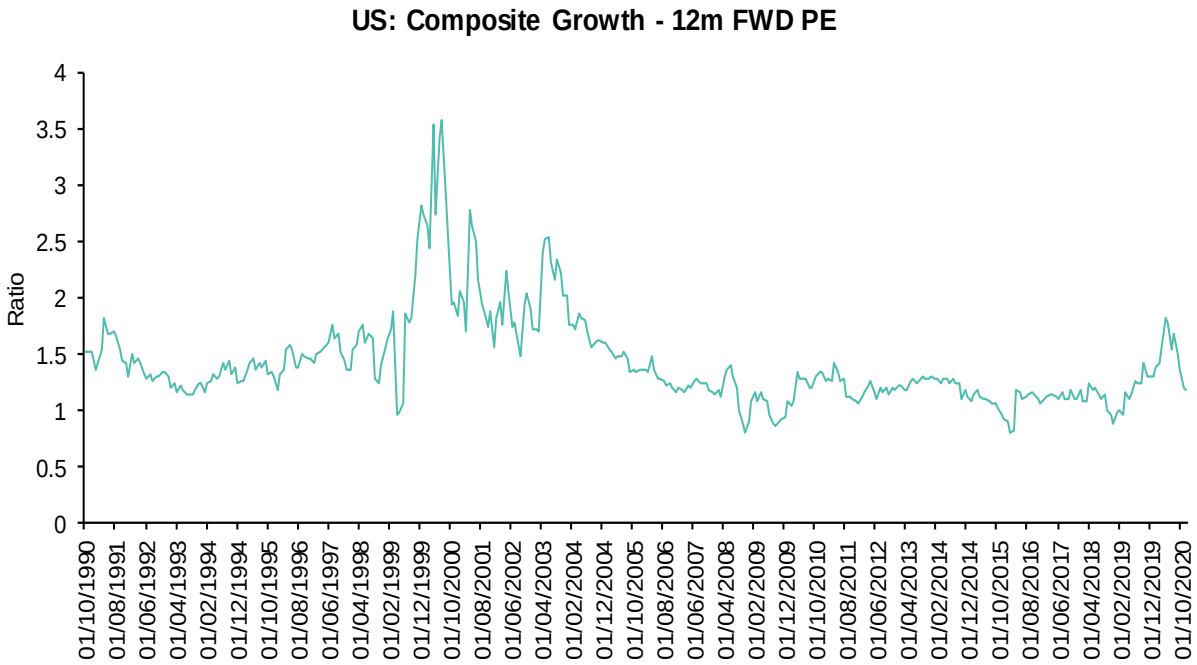
EXHIBIT 87: **Theoretical justified yield spread as function of discount rates**



Source: FactSet and Bernstein analysis

The recent months of the Covid-19 crisis have demonstrated the resilience of Tech companies' business models and in many cases helped to further entrench their dominant market position. We believe this gives the Tech sector earnings much greater visibility going forward than for other parts of the market. Thus, while the valuation of our Composite Growth factor has been creeping higher in recent months, we believe it can be sustained in the current environment (see Exhibit 88).

EXHIBIT 88: **US Growth factor valuation**



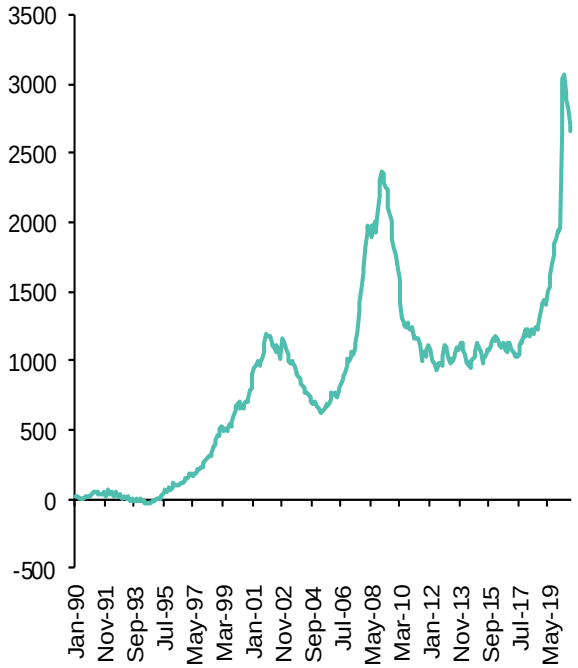
Source: FactSet, IBES, and Bernstein analysis

High cash allocations make inflation outlook even more important

The prospect of inflation is made even more important as the one big asset reallocation winner of March 2020 to June 2020 has been cash.

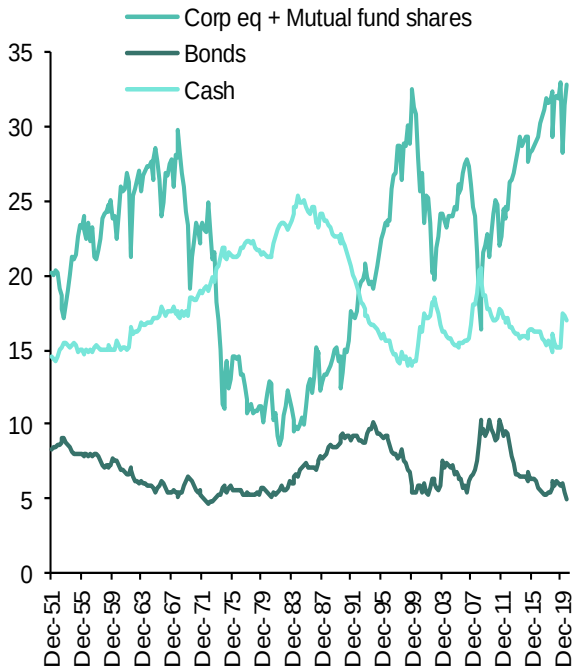
Investors have been buying money market funds at a record pace over March 2020-June 2020. According to ICI data, US investors bought US$1.15Tn of money market funds between the beginning of February and the end of May. This is the largest four-month net inflow into the asset class that we have seen in our post-1990 historical series and represents 24% of current as of July 2020. This pace of buying dwarfs the previous four-month record inflow of US$440Bn, which occurred between October 2008 and January 2009 at the height of the global financial crisis, and represented 11% of total assets of US money market funds at that time (see Exhibit 89 and Exhibit 90).

EXHIBIT 89: **US money market cumulative flows (USD Bn)**



Source: Investment Company Institute, Datastream, and Bernstein analysis

EXHIBIT 90: **US household asset holdings (% of total financial assets)**

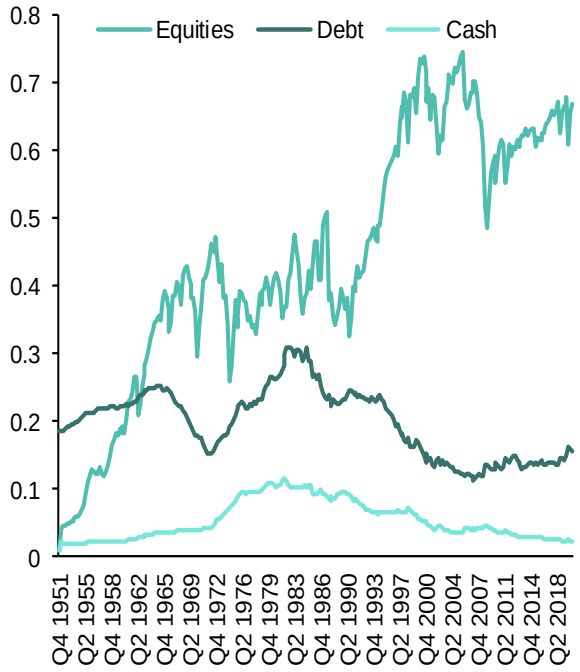


Note: Cash is check, currency, time deposits, money market funds, foreign currency deposits, and cash balances at brokers. Debt is all debt securities. Equities is Corporate Equities + US Mutual Fund shares.

Source: US Fed National Accounts (Z1) and Bernstein analysis

The surge in allocations into US money market funds is only partially reflected in the US Fed Z1 National Accounts data for the Household sector. The latest data point currently available is for the end of Q1 2020, which shows a strong uptick in holdings of cash to 17.8% of total financial assets from 15.3% in Q4 2019. Although this is a big increase, and it is the highest cash allocation for US Households since Q3 2011, it remains well below the previous peak cash allocation of 20.5%, reached in Q1 2009. The strong rise in the equity market between March and June 2020 should see Household allocations to equity partially recover in Q2 2020, but cash allocations should remain close to Q1 2020 levels, given the further inflows we have seen to money market funds over the quarter (see Exhibit 91 and Exhibit 92).

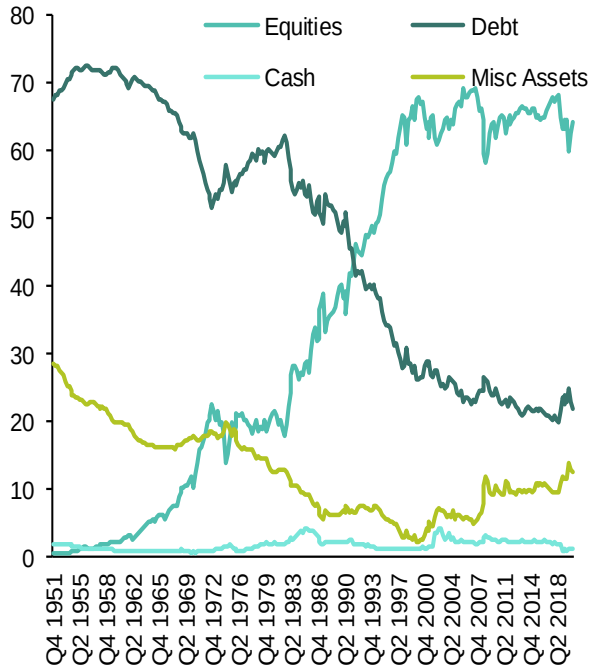
EXHIBIT 91: **US private pension funds asset holdings (% of total financial assets)**



Note: Cash is check, currency, time deposits, open market paper, and money market funds. Debt is all debt securities and loans. Equities is Corporate Equities + US Mutual Fund shares.

Source: US Fed National Accounts (Z1) and Bernstein analysis

EXHIBIT 92: **US state retirement funds asset holdings (% of total financial assets)**



Note: We have adjusted total financial assets in our calculations of allocations to be net of claims of pension funds on the plan sponsors for unfunded liabilities. Cash is check, currency, time deposits, open market paper, and money market funds. Debt is all debt securities and loans. Equities is Corporate Equities + US Mutual Fund shares. Misc Assets is unallocated insurance contracts and other assets.

Source: US Fed National Accounts (Z1) and Bernstein analysis

What if the Fed hasn't gone far enough?

We asked recently: Has the Fed gone too far?[16] What if that is the wrong question? There is an emerging possibility that the Fed hasn't gone far enough. The Fed's balance sheet could in theory rise further. In fact, the policy response in the depths of the crisis in March 2020 implies that such an effort could occur again should a "bad" event warrant it. This isn't really a financial question, but a social one. The central point of our research note on the Fed was that markets serve several different functions, and occasionally these functions come into conflict.

In a sense, a further expansion of the Fed's balance sheet from its current level would be an even more massive case of proverbial can-kicking, but one that may not have to be addressed for at least one election cycle. It would essentially be placing the near-term *social* utility of markets (avoiding mass bankruptcies and even higher unemployment in 2021) above other interests (including the roles of price discovery and capital allocation, but those have long-term social utility rather than short term).

[16] Portfolio Strategy: Has the Fed gone too far?

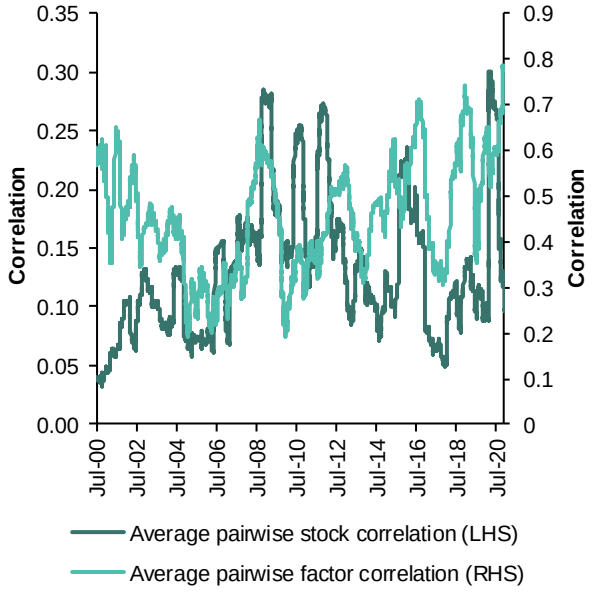
What would happen if the Fed continued to dramatically expand its balance sheet? Well, presumably equities rally even further — probably not at the rate we have seen since March 2020, given markets are already expensive, but they would rise and one can imagine a long-term "grind" higher through a combination of the "fear of missing out" (FOMO) and "there is no alternative" (TINA) arguments of recent years.

In Portfolio Strategy: S&P 4000 or S&P 8000? Our strategists disagree, I argued the low-return outlook on the S&P, while Alla pushed for the target 100% higher. I noted that in making my low target, I was accepting that targets based on mean-reversion are theoretically attractive but can always totally fail in the face of policy decisions. A further Fed intervention would be one of those cases and, at the very least, the 4000 10-year forward target on the S&P would likely be reached nine years early!

The other impact of any further Fed intervention would be to again make the market's role as a venue for price discovery play second fiddle to its role as a venue for capital raising. This implies assets being further delinked from "fundamentals," and a maintenance of the current high correlation environment both within equities and between asset classes.

Stock correlation has remained stubbornly high — a horrible environment for all but the most concentrated stock pickers — and any further expansion of the Fed's balance sheet would likely keep it there (see Exhibit 93 and Exhibit 94).

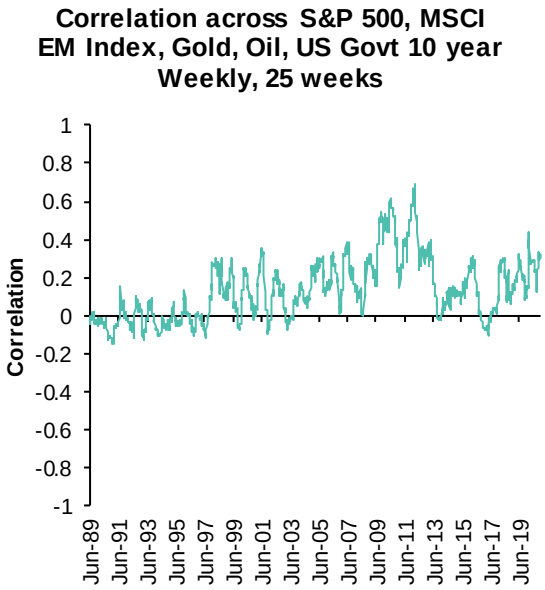
EXHIBIT 93: **Stock and factor correlation (global)**



Note: Global, daily data, six-month window. Global L/S Factors: Comp Value, 12-month Price Momentum, Quality, Composite Growth. We use rolling correlation of absolute returns of long-short factors and correlations of (signed) returns of stocks.

Source: MSCI, FactSet, IBES, and Bernstein analysis

EXHIBIT 94: **Pairwise cross-asset correlation (25-week rolling)**



Source: Datastream, Bloomberg, and Bernstein analysis

Conclusion

The bottom line is that if inflation eventually leads to high real rates and a steepening curve then investors are right to see this as a historical turning point for the Value factor. This does not mean that tactically Value is going to perform right now (in fact, tactically we think that would be the wrong trade), but for horizons greater than one year, it would suggest a pro-Value stance. However, we think that it must be recognized that there is a strong possibility that rates do not rise and the yield curve does not steepen. In that case, the low real rates imply that Growth assets can maintain current valuations, but the dynamics of the Value trade would depend more on short-term movements up and down in the cycle rather than seeing a strategic take-off in the prospects of the factor. Income in the equity markets may well do better than Value, *per se*, and would also be important as a diversifier of overall equity risk.

It is possible that a path could be steered through this with an allocation *both* to long-duration Growth assets and to inflation-sensitive Deep Value. In a world where most asset classes (equities, bonds, private equity, and credit) are either fully valued or outright expensive, maybe the Value factor is the only "asset class" that investors can buy. But, as we have noted, the power of mean reversion is not enough and the policy path will determine this more than ever.

VALUE IS DEAD, LONG LIVE VALUE

OVERVIEW

One of the most controversial questions for investors coming into 2021 is: what to do about Value stocks? The question of whether Value is dead has rumbled for the past decade. With the S&P trading at record multiples and valuation spreads at 90-year extremes, this question is urgent.

There are a host of reasons why traditional Value definitions have failed over the past decade. However, we think Covid-19 brings one crucial change: the outlook is now inflationary. It is very hard for Value to do well as inflation falls. Now that it seems set to rise, should investors buy cheap stocks?

The central issue here is that the rules have changed. We think while inflation will rise on a 1 year+ horizon, the yield curve will not steepen. This fundamentally changes the link between mean-reversion of Value and inflation.

We show there are three different kinds of Value stocks:

- Undervalued stocks in core cyclical sectors. We show these can rally with inflation even without the yield curve steepening. We think investors can hold such stocks now and suggest candidates to buy.

- Value within commodity cyclicals. These can also rally with inflation. Moreover, as part of a cross-asset portfolio, the Energy and Mining sectors play a role as income-bearing assets in a higher-inflation world.

- Banks. Bivariate regressions of Value stocks within the Banks on both inflation and the yield curve show that the yield curve dominates in determining relative return. Banks can be part of a tactical pro-inflation trade, but we think over longer horizons they may not benefit as much as expected if the yield curve does not significantly steepen.

We remain overweight US Growth in global portfolios, but think there is a role for an exposure to selected Value names within core cyclicals. Indeed, not to own any such names would be a risk in the case of tactical rallies higher in Value stocks.

Overall, the kinds of stocks to own right now fall into three categories. They are either long-duration Growth stocks (e.g., Tech/Healthcare) OR sustainable dividend payers that are crucial as fixed-income replacement holdings (e.g., in Consumer Staples) OR beaten up core Value cyclicals that we believe are staying in business through the Covid-19 crisis.

The Value factor faces many structural headwinds, but in a world where equities, credit, and sovereign bonds are all expensive, Value might be the only "cheap" asset to buy, and inflation gives the impetus. However, the radical shift in the policy landscape means not all Value stocks will mean-revert. This chapter discusses how the factor has to change.

DETAILS

One of the most controversial questions for portfolio positioning in conversations with PMs over the last month has been what to do about exposure to Value factors. With Growth stocks valued at very high multiples, is there a case to buy cheap stocks that have been beaten by the pandemic and left behind?

We have asked in previous research the question whether Value is dead.[17] We concluded that it was not entirely dead, but that it faced structural headwinds in terms of the loss of defensive moats around industries, while the switch in corporate investment from tangible to intangible assets raises the question of whether value is measured appropriately. But one element that has been missing for the last 10 years is inflation. It is really hard for Value to rally if inflation is falling, as it has been for much of the last decade.

In many ways, Covid-19 has accelerated trends that were already in place — e.g., the downward path of discount rates. But in one important aspect, we think it changes the macro backdrop for markets and that is inflation. We think the policy response to Covid-19 will be inflationary on a one-year time frame, once we are past the current deflationary shock.[18]

There is, thus, a potential strategic AND a tactical case for Value. The strategic case:

- All major asset classes are expensive (equities, credit, sovereign bonds, and private equity). With valuations across the market at 90-year extremes, maybe the Value factor is the only cheap "asset" that investors can buy,
- The policy change is of such magnitude that we think it will lead to inflation and, when inflation goes up, Value usually does well.

To that we can append a tactical case:

- Inventories have collapsed and as they rebound could lead to tentative pricing power in some specific cyclical industries.
- The level of disagreement between analysts reached a record high in H1 2020 but is now falling. As disagreement falls, it tends to help Value companies.
- Value tends to be pro-cyclical and can "look through" to a recovery in macro data in 2021.

This all may be the case but we think, in the famous words, that it is different this time. The reason for the difference is that post Covid-19 we find ourselves in a new policy regime. We think inflation will return on a time horizon of around a year, but the yield curve will not steepen. The Fed has told us this already, and if that is not enough to keep market yields from rising, there is always yield curve control as a next step. So, the past relationship between Value and inflation might not continue.

[17] Global Quantitative Strategy: Has Value met its Waterloo?
[18] Portfolio Strategy: Inflation, investing and the coming of MMT

In this chapter, we disaggregate the Value factor into a core cyclical, a commodity cyclical, and a Financials component and show how these three elements respond differently to the yield curve and to inflation.

Equity PMs should have exposure to Value stocks in core cyclical groups right now in their portfolios. The approach here should be to find beaten up stocks that are likely staying in business, not being nationalized, and can respond to positive economic data when it comes. These companies likely need a resetting of the supply levels in their industries (e.g., fewer seats available on planes) or for inventories to find a floor. At that point, a return of inflation could be a signal of pricing power returning.

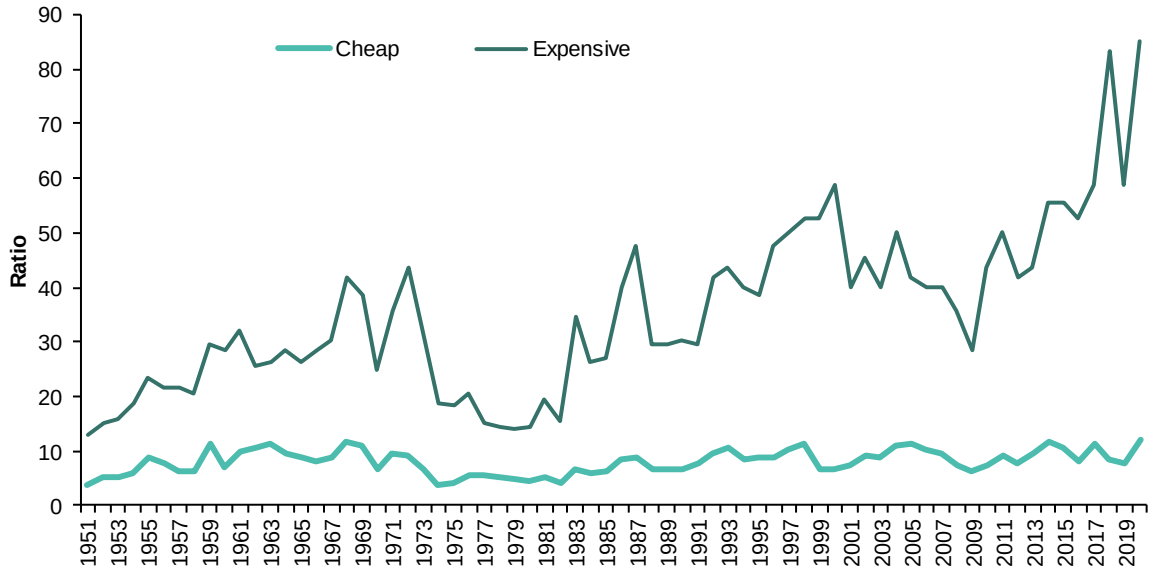
For cross-asset investors having exposure to cheap valuations is important in a world where most assets are expensive; however, the framework we detail in this chapter gives a route to separate cheap valuations that might give a mean-reversion signal and those that don't. We also assume the cross-asset outlook will focus on assets that can offer inflation protection, and commodity Value names can help in this regard.

There are structural reasons why valuation has not worked as a factor in recent years, such as declining bond yields impeding mean reversion and the switch of corporate investments from tangible to intangible assets, but one key missing piece has been inflation. As shown in our "The Fed, the Market, the Value-Growth Debate, and Inflation" chapter, historically the Value factor has done best when inflation has risen. Inflation has persistently disappointed on the downside over the last five years. If inflation is now set to rise, is this the key support for Value that has been lacking? If so, should one be buying the cheaper Value sectors?

From an asset-owner perspective, and taking a strictly cross-asset view, a major issue is nearly all assets being expensive compared to history: equities, sovereign bonds, and credit. At the same time, valuation spreads across the market are, by some measures, at extreme levels. Exhibit 98 shows the current market-cap-weighted trailing PE for expensive stocks in the US is 85x, at record levels, while cheap stocks trade on the same absolute multiple as they did in the early 1960s, even though discount rates are a lot lower now than they were then.

So, maybe in a long-short sense, Value is the only cheap "asset" that investors can buy. Valuations rarely matter in determining the short-term tactical outlook, but over a longer-term strategic horizon, valuations tend to matter more. But how much of this valuation spread can mean-revert? We have previously discussed how the outlook for a prolonged period of low or negative real rates implies that at least some of the spread may not mean-revert in the near term, though there are elements of value cyclicals that may benefit from mean reversion (see Exhibit 95).

EXHIBIT 95: **Valuation spreads are at 90-year extreme levels**



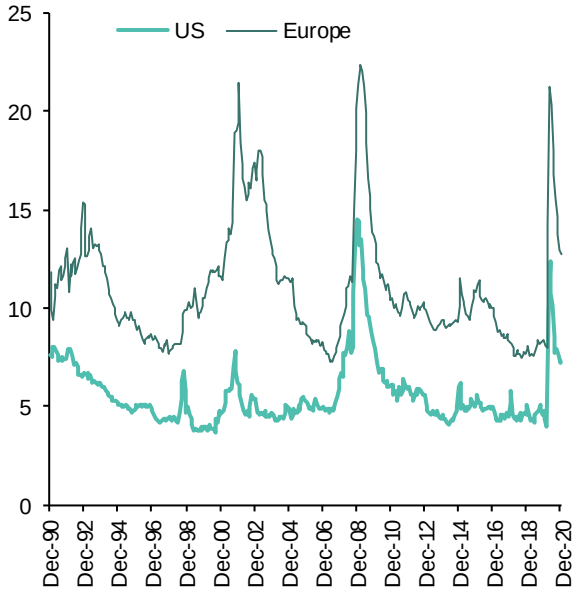
Note: The historical series is derived from the Ken French data library and it is the market-cap-weighted inverted trailing earnings yield for the most expensive and cheapest quintile of stocks out of the largest 1,200 US stocks. We exclude stocks with negative trailing earnings.

Source: Ken French data library, MSCI, Bloomberg, FactSet, and Bernstein analysis

A potential tactical driver for cyclical Value stocks is the sharp contraction in levels of inventories held by corporates, particularly in the US. Even before Covid-19 came along, inventory levels were low. Over the last six months, they have fallen to record lows. With inventory levels this tight, there is potential for them to snap back.

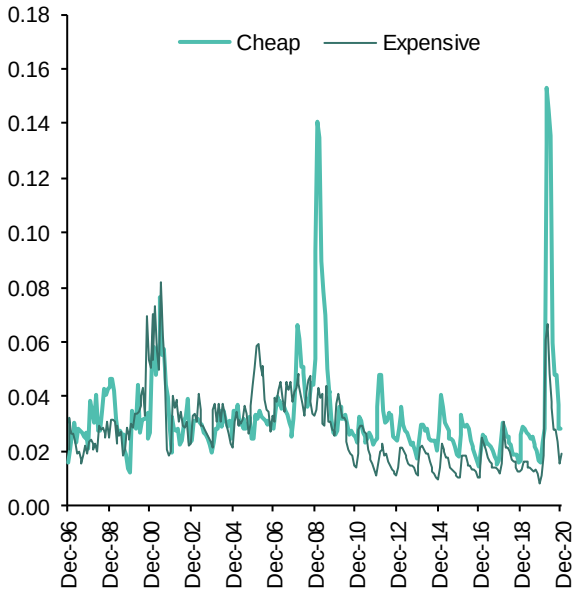
The normalization of the Covid-19-related spike in levels of uncertainty around earnings forecasts, as measured by the dispersion of analyst EPS estimates around the average, is a positive, both for the market and for Value stocks. Although we have seen a lessening of uncertainty recently, there is still a substantially higher level of dispersion in estimates than before the pandemic, for US and European equities overall (see Exhibit 96). But cheap stocks in the US have seen a substantial fall in uncertainty and a rapid retrenchment of the dispersion gap vs. expensive stocks (see Exhibit 97). This should also be of some tactical support to Value stocks.

EXHIBIT 96: **MSCI US – standard deviation of 12-month forward EPS estimates/Mean Consensus EPS estimates**



Source: MSCI and Bernstein analysis

EXHIBIT 97: **Disagreement between analysts covering Value stocks has surpassed the level of the GFC**



Note: Shows the aggregate weighted cross-sectional standard deviation of 12-month forward stock EPS forecasts for the cheap and expensive quintiles of the MSCI US index normalized by the aggregate mean consensus 12-month forward EPS forecast.

Source: MSCI and Bernstein analysis

Value returns vs. yield curve and inflation expectations

Our thesis is that expectations of inflation are likely to rise in the medium to long term, given the scale of extraordinary monetary and potentially fiscal support pledged by governments. However, rates are likely to remain at low levels and the yield curve likely to remain flat. Therefore, we want to find a measure of Value and areas within Value that are most sensitive to rising inflation expectations but do not require a corresponding steepening of the yield curve to outperform.

We ran linear regressions over the last 10 years with returns of various of our long-short Value measures in Europe and the US, and contemporaneous changes in both the slope of the 10-year to three-month yield curve and the change in inflation expectations, proxied by the change in the 10-year breakeven spread in both regions. The results are presented in Exhibit 98 and Exhibit 99.

In both the US and Europe, all Value measures, except dividend yield and FCF yield, have shown a positive and statistically significant relationship with inflation expectations. In Europe, there is also a positive and significant relationship with the yield curve for most models, apart from the ex-Financials versions of price-to-book and residual value, where the t-stats are not significantly different from zero. However, where changes in both the yield curve and inflation expectations are both significantly positive, the inflation

expectations variable tends to have a higher t-stat and, therefore, is the most statistically significant of the two variables in driving Value returns.

US Value returns, apart from those defined as dividend and FCF yield, have also exhibited a strong statistically significant relationship with changes in 10-year breakevens, with the t-stats indicating a stronger relationship than in Europe.

EXHIBIT 98: **Europe: sensitivity of Value returns to changes in inflation expectations and the yield curve**

Factor	Item	Intercept	Breakeven	Yield Curve	RSq
Price to Book	Coeff	-0.01	0.15	0.08	0.33
	T	-1.24	3.81	3.00	
Comp Val	Coeff	-0.02	0.11	0.06	0.23
	T	-2.20	2.92	2.41	
DY	Coeff	-0.01	0.03	-0.02	0.01
	T	-1.59	1.06	-1.08	
Forward PE	Coeff	-0.02	0.12	0.06	0.28
	T	-2.18	3.36	2.67	
Residual Value	Coeff	-0.01	0.08	0.04	0.26
	T	-1.45	3.27	2.58	
Price to Book (ex fin)	Coeff	-0.01	0.18	0.02	0.33
	T	-1.59	5.73	0.75	
DY (ex fin)	Coeff	-0.02	-0.02	-0.02	0.02
	T	-3.71	-0.65	-0.83	
Residual Value (ex fin)	Coeff	-0.01	0.06	0.03	0.15
	T	-1.38	2.46	1.67	
FCF Yield (ex fin)	Coeff	0.02	0.00	-0.01	0.00
	T	3.06	0.16	-0.43	

Note: Regressions on six-month returns of long-short Value metrics against contemporaneous six-month changes in the monthly frequency 10-year to three-month yield curve (German) and monthly German 10-year breakeven. Data from December 2009 to August 2020. The shading highlights where the relationship is positive and statistically significant.

Source: MSCI, FactSet, and Bernstein analysis

EXHIBIT 99: **US: sensitivity of Value returns to changes in inflation expectations and the yield curve**

Factor	Item	Intercept	Breakeven	Yield Curve	RSq
Price to Book	Coeff	-0.03	0.14	-0.03	0.31
	T	-6.06	7.41	-2.38	
Comp Val	Coeff	-0.03	0.10	-0.04	0.14
	T	-3.95	4.39	-3.20	
DY	Coeff	-0.02	0.02	-0.09	0.38
	T	-3.45	1.10	-8.15	
Forward PE	Coeff	-0.01	0.06	0.01	0.08
	T	-1.27	2.56	0.57	
Residual Value	Coeff	-0.01	0.08	0.01	0.23
	T	-2.68	4.70	1.39	
Price to Book (ex fin)	Coeff	-0.03	0.12	-0.03	0.25
	T	-5.74	6.42	-2.41	
DY (ex fin)	Coeff	-0.02	0.02	-0.08	0.33
	T	-3.19	1.06	-7.36	
Residual Value (ex fin)	Coeff	-0.02	0.09	0.00	0.24
	T	-3.37	5.48	0.20	
FCF Yield (ex fin)	Coeff	0.01	0.03	0.00	0.03
	T	1.92	1.59	0.24	

Note: Regressions on six-month returns of long-short Value metrics against contemporaneous six-month changes in the monthly frequency US 10-year to three-month yield curve and monthly US 10-year breakeven. Data is from December 2009 to August 2020. The green/light gray shading highlights where the relationship is positive and statistically significant. The blue/dark gray shading highlights where the relationship is negative and statistically significant.

Source: MSCI, FactSet, and Bernstein analysis

From the regression analysis, we conclude that since 2009 changes in inflation expectations as proxied by changes in 10-year breakeven rates have been more influential on the returns of most definitions of Value than changes in the yield curve. However, within Value as a style, we think there are groups of commodity Value and cyclical Value stocks that are particularly sensitive to changes in inflation expectations and not so reliant on a steepening of the yield curve.

We ran further regressions on the Value subgroups of our European and US Value measures to test the sensitivities of the intra-Value groups to changes in inflation expectations and the yield curve.

We divide our cheap Value stocks into three subbaskets. The Cyclical Value basket comprises Industrials and Consumer Discretionary stocks, the Commodity Value basket comprises Energy and Materials stocks, and Financials comprises Financials and Real Estate stocks. We calculated the equal-weighted performance of each of these baskets

back through time, relative to the equal-weighted benchmark and ran regressions of 12-month relative returns for each basket on contemporaneous changes in the yield curve and inflation expectations (10-year breakevens) since the end of 2009.

The results show that in the US, Commodity and Cyclical Value returns are much more sensitive to changes in inflation expectations than to a steepening yield curve (see Exhibit 101). Even where the coefficients on both are statistically significant, the change in inflation expectations t-stats imply a much stronger positive relationship between Commodity and Cyclical Value returns to inflation expectations than to changes in the yield curve. This implies Cyclical and Commodity baskets may not need a steepening yield curve in addition to rising inflation expectations in order to outperform. However, for US Financials Value, yield curve changes are just as important as rising inflation expectations, and both may need to occur to see any sustainable outperformance of the Value subgroup. Though this does not preclude Financials from benefiting tactically from upswings in inflation, it just might not be a long-term strategic call for the sector.

In Europe, the results are a bit more mixed but generally draw similar conclusions. Commodity and Cyclical Value are more sensitive to rising inflation expectations than a rising yield curve, whereas in European Financials Value, returns are dependent on changes in the yield curve and not to inflation expectations (see Exhibit 100).

EXHIBIT 100: **Europe: Sensitivity of Value subgroups to changes in inflation expectations and the yield curve**

Value Measure	Sector	Item	Intercept	Breakeven	Yield Curve	RSq
Price to Book	Commodity	Coeff	0.03	0.31	0.01	0.21
		T	1.33	4.66	0.30	
	Cyclicals	Coeff	0.06	0.10	0.02	0.09
		T	4.88	2.53	0.82	
	Financials	Coeff	0.01	0.01	0.13	0.29
		T	0.48	0.35	5.88	
Residual Value	Commodity	Coeff	0.00	0.33	0.00	0.20
		T	0.15	4.71	0.03	
	Cyclicals	Coeff	0.03	0.01	0.05	0.09
		T	3.76	0.30	2.86	
	Financials	Coeff	0.00	-0.04	0.18	0.29
		T	-0.30	-0.79	6.34	

Note: Regressions on 12-month returns of the combined baskets of Materials /Energy (Commodity); Industrials/Consumer Cyclical (Cyclicals) from cheap price-to-book, Residual Value style relative to the equal-weighted benchmark against contemporaneous 12-month changes in the monthly frequency 10-year to three-month yield curve (German) and monthly German 10-year breakeven. Data is from December 2009 to August 2020. The shading highlights where the relationship is positive and statistically significant.

Source: MSCI, FactSet, and Bernstein analysis

EXHIBIT 101: **US: Sensitivity of Value subgroups to changes in inflation expectations and the yield curve**

Value Measure	Sector	Item	Intercept	Breakeven	Yield Curve	RSq
Price to Book	Commodity	Coeff	-0.08	0.29	0.02	0.52
		T	-6.97	10.37	1.10	
	Cyclicals	Coeff	0.04	0.18	0.04	0.42
		T	4.33	7.81	2.30	
	Financials	Coeff	0.00	0.07	0.03	0.20
		T	0.48	3.68	2.55	
Residual Value	Commodity	Coeff	-0.10	0.30	0.01	0.52
		T	-8.22	10.63	0.75	
	Cyclicals	Coeff	0.01	0.12	0.02	0.42
		T	1.91	7.79	2.31	
	Financials	Coeff	0.03	0.16	0.09	0.35
		T	2.47	4.91	4.45	

Note: Regressions on 12-month returns of the combined baskets of Materials /Energy (Commodity); Industrials/Consumer Cyclical (Cyclicals) from cheap price-to-book, Residual Value style relative to the equal-weighted benchmark against contemporaneous 12 month changes in the monthly frequency US 10-year to three-month yield curve and monthly US 10-year breakeven. Data is from December 2009 to August 2020. The shading highlights where the relationship is positive and statistically significant.

Source: MSCI, FactSet, and Bernstein analysis

This leads us to recommend specific stocks in the core cyclicals that show up on our Residual Value metric. We think these are candidates to go into a portfolio right now. In addition, for those particularly focused on inflation risk, commodity cyclicals form another group, though the path to buying these could take more time. We would stay away from the Banks.

Residual Value is our favored measure of Value, which is adjusted for fundamentals and involves estimating by a cross-sectional regression how much of a stock's sector relative price-to-book multiple is explained by its sector-relative profitability (ROE). The residual from the regression provides a measure of value that can be thought of as a mispricing relative to the firm's fundamentals. We have found in empirical tests that stocks selected using the residual definition of Value have outperformed the simple price-to-book measure of Value over the long run (Global Quantitative Strategy: Value without the traps - how and where to look for mispriced opportunities).

The stocks mentioned in Exhibit 102 and Exhibit 103 are based on the Cyclical Value areas of our cheap Residual Value stock screen. However, we have also overlaid a forward FCF yield filter and, where appropriate, the rating from Bernstein stock analysts.

EXHIBIT 102: **Europe Cyclical Residual Value stocks**

Sedol	Company	12m Fwd FCF Yield	Bernstein Rating
5497102	VOLKSWAGEN STAMM	9.2	M
5529027	DAIMLER	6.7	O
4712798	RENAULT	4.6	O
5756029	BMW STAMM	5.2	O
BMD8KX7	FIAT CHRYSLER AUTOMOBILE	4.3	
BMTVQK9	SIEMENS ENERGY	2.1	
B1XH026	VINCI	6.8	
4253059	AP MOLLER MAERSK A	12.5	
7380482	SAINT-GOBAIN	7.6	
BB22L96	KION GROUP	4.6	
5228658	RANDSTAD NV	5.7	
4253048	AP MOLLER MAERSK B	12.5	
BZ1G432	MELROSE INDUSTRIES	1.1	
4002121	BOUYGUES	12.1	

Note: O= Outperform rating, M= Market-Perform rating, U = Underperform rating. Further details of the research and important disclosures of the covered securities are available on Bernstein Research website: www.bernsteinresearch.com. Other stocks are not covered by Bernstein.

Source: FactSet, MSCI, and Bernstein analysis

EXHIBIT 103: **US Cyclical Residual Value stocks**

Sedol	Company	12m Fwd FCF Yield	Bernstein Rating
2523044	CARNIVAL CORP (US)	-17.6	
2635701	NEWELL BRANDS	7.4	
2615468	FORD MOTOR CO	4.8	
2598699	MOHAWK INDUSTRIES	5.6	
2111955	BORGWARNER	5.8	
2754907	ROYAL CARIBBEAN GROUP	-12.2	
2708841	PULTEGROUP	7.3	
2250687	HORTON (DR)	4.7	
B665KZ5	GENERAL MOTORS	6.1	
2511920	LENNAR CORP A	5.8	
B570P91	LEAR CORP	7.3	
2971029	LKQ CORP	7.5	
BY7QL61	JOHNSON CONTROLS (NEW)	4.7	
BK9DTN5	L3HARRIS TECHNOLOGIES	7.3	O
2365161	GENERAL DYNAMICS CORP	7.0	M
2885937	TEXTRON	5.1	
2955733	WABTEC CORP	5.7	
BF0LKD0	KNIGHT-SWIFT TRANSPORT	7.3	
2818740	SNAP-ON	6.9	
2469052	JACOBS ENGINEERING GROUP	3.7	O
BL5GZ82	INGERSOLL-RAND	3.7	
2665861	PACCAR	5.9	M
B1FW7Q2	OWENS CORNING	8.6	
2028174	AMERCO		
BM5M5Y3	RAYTHEON TECHNOLOGIES	4.1	M

Note: O= Outperform rating, M= Market-Perform rating, U = Underperform rating. Further details of the research and important disclosures of the covered securities are available on Bernstein Research website: www.bernsteinresearch.com. Other stocks are not covered by Bernstein.

Source: FactSet, MSCI, and Bernstein analysis

IF CASH AIN'T KING ANYMORE

OVERVIEW

- A mystery of H2 2020, is why companies paying attractive yields, and especially those with high FCF yields, have delivered such a ghastly performance. Aren't investors meant to be desperate for yield right now? This chapter analyzes why this might have happened and explores what kinds of high-yielding companies can be bought now.

- FCF Yield used to be the most *acyclical* of the main factors, working in most environments, offering an attractive halfway house between Value and Quality. However, we show that the sensitivity of FCF Yield to inflation expectations has picked up. In common with other Value factors, the tentative increase in inflation expectations hasn't been enough yet to overwhelm the near-term reality of our current deflationary shock.

- Some of this increased sensitivity to inflation comes from an increase in the weight of commodity stocks in the FCF Yield factor (reflecting their greater capital discipline in recent years). But the link also reflects the greater sensitivity of most assets to inflation and rates, as rates have fallen. When long duration is so in favor, it is hard for a short-duration factor such as FCF Yield to outperform.

- However, within the group of high-FCF-yield companies there are distinctions. Core cyclicals have started to do better. We think there is a good case to own such cyclicals with generous FCF yields, at the very least as a way of having a high-quality exposure to any tactical Value rebounds.

- Commodity stocks with high FCF yields have suffered, but we think a case for these emerges once a recovery in forward inflation expectations can move above the pre-Covid-19 level,

- The other group of high-FCF-yield companies are in Staples and Telcos. We would be happy to own the Staples in that group now in line with our belief that the sector sees a bid from cross-asset investors. For the Telcos, it is perhaps more of a case of seeing what level of capital intensity is required for the group.

- The bottom line is that the FCF Yield factor has disappointed in 2020. It is meant to be an all-weather factor, but has seen its worst performance in 20 years. Tactically, however, there is a case to be made to selectively own high-yielding stocks at present. For those with longer horizons, there is an even stronger strategic case, as part of a fixed income replacement trade.

DETAILS

Tactical vs. strategic cross-asset case

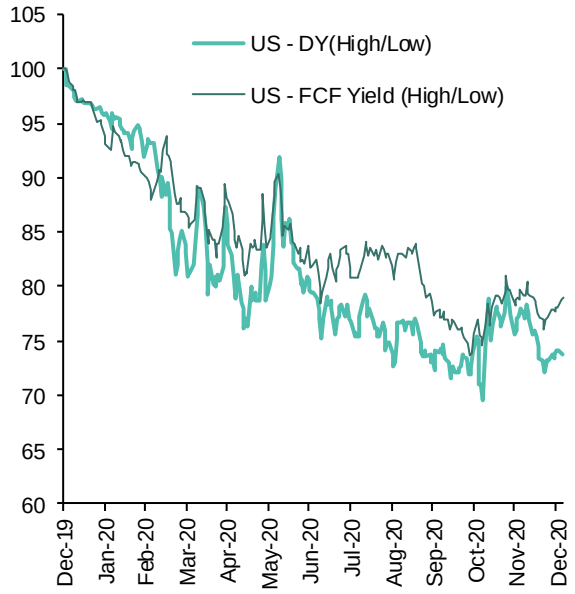
We find it odd that companies paying attractive yields have fared so poorly in recent months. Aren't investors meant to be desperate for yield? Maybe that would be

understandable if investors were fearful of dividends being cut, but the underperformance is present even for companies with high levels of forward FCF yield. Maybe this is just about everything underperforming vs. high growth? Well not entirely — the FCF Yield factor has done poorly even relative to the market ex-Tech.

This chapter tries to explain this recent underperformance and suggests what kind of yield strategies investors can buy. The focus of this chapter is tactical, for investing over 2021. Separately, there is a strategic and a structural demand for yield in the equity market from the need of asset owners to assess their high-grade fixed income portfolios in light of the need to generate real positive returns and control duration risk. We covered this at length in Portfolio Strategy: The cross-asset case for Staples and Portfolio Strategy: The best fixed income portfolio right now is …. in equities.

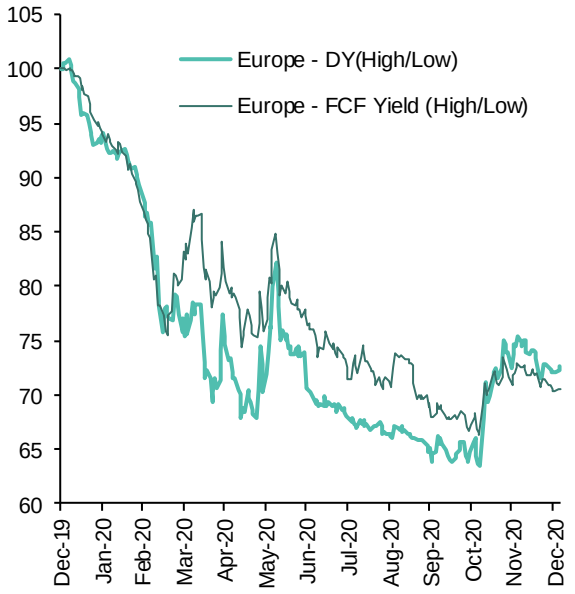
In 2020, a strategy of buying the highest-yielding quintile of stocks in the market and selling the lowest-yielding quintile of stocks would have lost investors in US stocks 26% if they used dividend yield to discriminate between the long-short baskets or 21% if they used FCF yield. Investors in European stocks would have fared even worse, with long-short dividend yield losing 27% and long-short FCF yield losing 29% (see Exhibit 104 and Exhibit 105).

EXHIBIT 104: **Performance of long-short high-yield equities in the US**



Source: FactSet, IBES, and Bernstein analysis

EXHIBIT 105: **Performance of long-short high-yield equities in Europe**



Source: FactSet, IBES, and Bernstein analysis

This is a problem for the large section of investors who invest for income as opposed to growth. So why do we think that equity yield strategies are underperforming and can we find any groups of high-yielding stocks that may currently offer more stable returns?

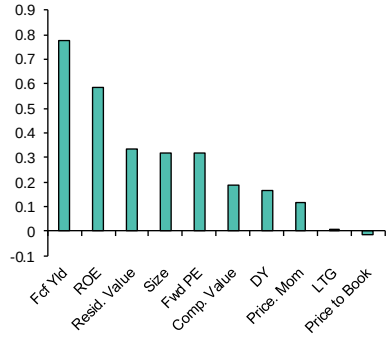
Even though the low rates on offer in bond markets should make high-dividend-yield stocks more attractive, we understand that investors may be skeptical about the ability and

willingness of companies to maintain payouts. European banks and companies that have sought government assistance during the pandemic have been discouraged from making dividend payments and buyback distributions to shareholders. Moreover, the sectors hardest hit by the pandemic may be more focused on preserving cash than paying dividends. With increased risk around the sustainability of payouts, it is perhaps understandable that investors have been unwilling to bid high-dividend-yield stocks higher.

However, the underperformance of the FCF Yield factor, which excludes Financials stocks and tends to allocate to companies that can better maintain and grow dividends, is more of a puzzle. We have highlighted in previous research (Global Quantitative Strategy: FCF yield - the deep dive) that over the long term a long-short strategy of buying high FCF stocks and selling low FCF stocks has produced superior risk-adjusted returns, outperforming long-short Quality (ROE), Growth (LTG), Momentum, Size and all the other Value-based measures such as price-to-book,12-month forward PE and dividend yield. Furthermore, these superior returns historically earned by the factor globally have been replicable across regions (see Exhibit 106 to Exhibit 108).

Moreover, a particularly attractive feature of the strategy has been its ability to generate positive returns regardless of the economic cycle. That is part of the reason why it is our favored strategic Value-based factor. This used to be the most *acyclical* of all the main factors. Has something changed?

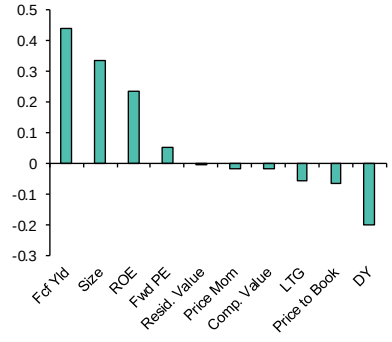
EXHIBIT 106: **Global long-short factors: historical return/risk**



Note: January 1992 to September 2020

Source: FactSet, IBES, and Bernstein analysis

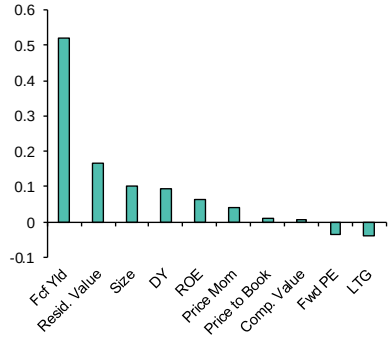
EXHIBIT 107: **US long-short factors: historical return/risk**



Note: January 1992 to September 2020

Source: FactSet, IBES, and Bernstein analysis

EXHIBIT 108: **Europe: long-short factors: historical return/risk**



Note: January 1992 to September 2020

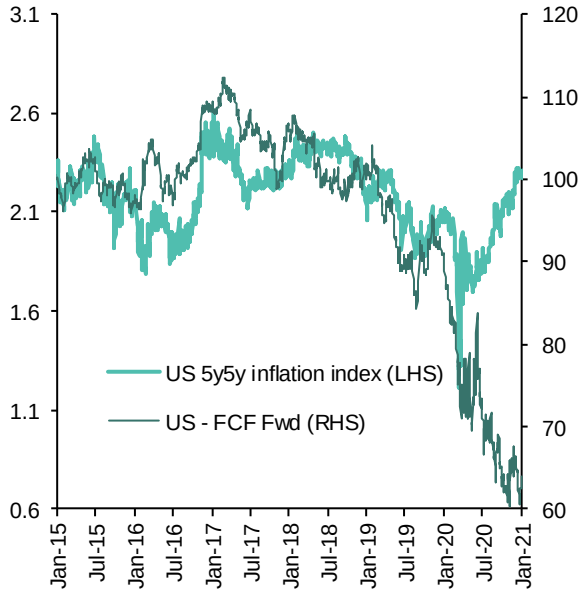
Source: FactSet, IBES, and Bernstein analysis

So why do we think the FCF Yield factor has not performed as expected in 2020?

Like for other Value-based factors, we think the drop in inflation expectations may be partly to blame. The recent returns of long-short FCF Yield has moved closely with measures of forward inflation expectations. This is particularly the case in the US, where FCF has correlated as strongly with 5y5y forward inflation swaps as the more traditional measures of Value, such as price-to-book and our Composite Value factor. In Europe, the relationship between FCF Yield returns and inflation has not been as strong as in the US, but is still significantly positive, also leading to the conclusion that falling inflation expectations have

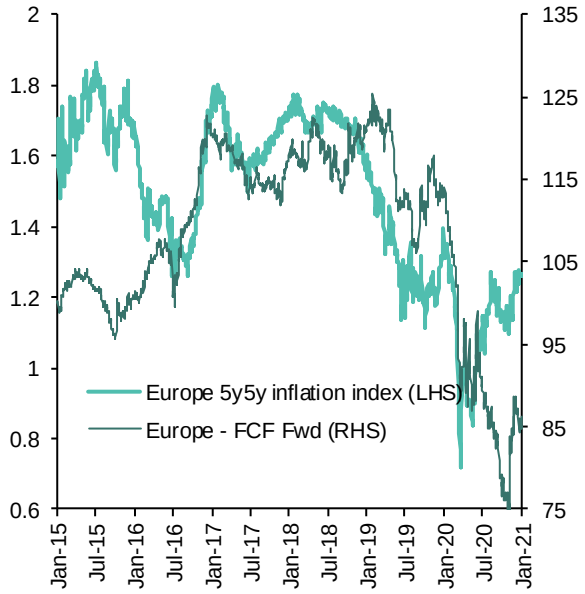
been an impediment to the performance of FCF Yield and other Value measures in general, despite the historically wide valuation spreads between cheap and expensive stocks.

EXHIBIT 109: **US 5y5y inflation index and US FCF forward**



Source: FactSet, IBES, and Bernstein analysis

EXHIBIT 110: **Europe 5y5y inflation index and Europe FCF forward**



Source: FactSet, IBES, and Bernstein analysis

It is notable that the FCF Yield factor has not responded to the latest uptick in inflation expectations illustrated in Exhibit 109 and Exhibit 110. We think this upward move has only really reversed a portion of the collapse in expectations of inflation that we have seen in recent years and may not yet denote a significant change in expectations of inflation. We may well need to see further upward moves in order to translate into FCF Yield and Value outperformance.

We also looked at the changing sensitivity of FCF Yield factor returns to changing inflation expectations over a longer horizon to gauge whether the recent co-movement with inflation expectations is unusual. Exhibit 111 shows the t-stats of a rolling three-year regression of six-month long-short US FCF Yield factor returns on six-month changes in the 10-year breakeven rate and the US yield curve. The relationship between FCF factor returns to inflation expectations is usually negative, which makes sense as higher inflation would normally be associated with a corresponding rise in interest rates, a negative for a yield strategy. However, the relationship has moved significantly positive over the most recent three years with a further leg upward in 2020 (see Exhibit 111).

Why has this happened and what may have been the cause? If we disaggregate the FCF Yield factor into the long and the short side of the trade and assess the impact of inflation and interest rates on each side separately, then that may provide some insight. The long side of the strategy, the high-yield stocks should in theory benefit from a yield substitution effect as inflation expectations and market yields have fallen in recent years. However, the short side of the trade, which not only is low yield but also long duration would also benefit

from low interest rates, as the Value of future cash flows increase as they are discounted at lower rates. We have written extensively about the attractiveness of long vs. short duration in an era of low interest rates (Portfolio Strategy: What is a Growth stock today?) and the persistence of high profitability. At present, due to record low interest rates, we believe the "duration" effect on low-yielding stocks is stronger than the substitution effect on high-yield stocks and, therefore, the current record low rates favor an outperformance of low-yield (high-duration) stocks over high-yield (low-duration) stocks.

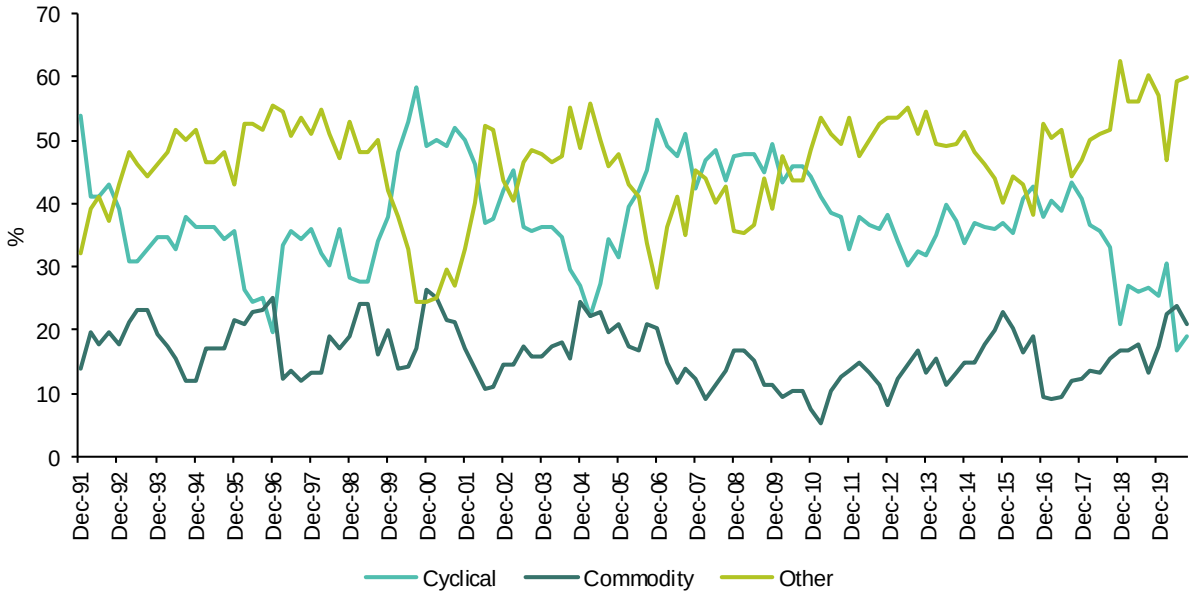
EXHIBIT 111: **The relationship between FCF returns and inflation expectations has become positive**

Note: Shows the t-stat from a three-year rolling regression since August 1998 of six-month long-short returns of US FCF Yield factor and contemporaneous returns of 10-year breakeven spreads and 10-year to three-month US yield curve.

Source: Bloomberg and Bernstein analysis

In addition, in recent years the composition of the high FCF Yield basket has become more exposed to commodity sectors, as these companies have improved capital discipline and increased FCF generation. The increased exposure to commodity stocks would also result in a greater sensitivity to inflation over time (see Exhibit 112).

EXHIBIT 112: **US high-FCF-yield Stocks – subgroup composition**



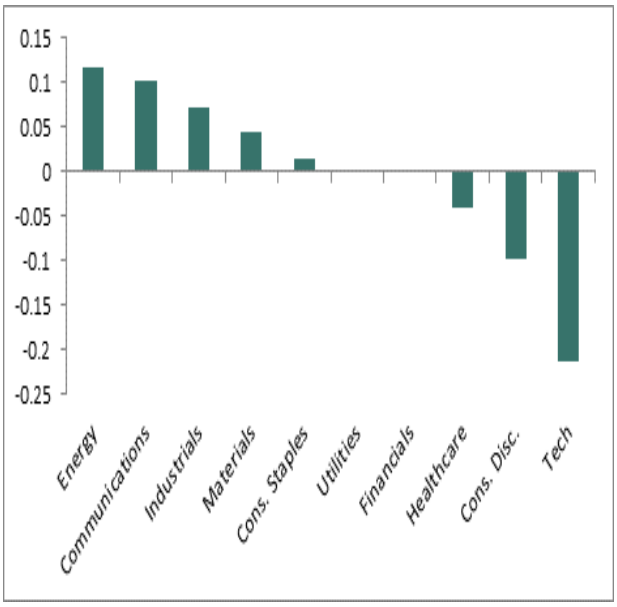
Note: Composition of the US high-FCF-yield basket into broad subgroups. The Cyclical group comprises stocks in the Consumer Discretionary and Industrials sectors. The Commodity group comprises stocks in the Energy and Materials sectors. The other subgroup consists of Consumer Staples, Technology, Healthcare, Utilities, and Communications sectors.

Source: FactSet, IBES, and Bernstein analysis

Another possible explanation for the underperformance of long-short FCF strategies is the sector exposures that result from going long high yield and short low yield. Exhibit 113 and Exhibit 114 show that in both the US and Europe, FCF Yield is currently overweight Energy, Communications, and Materials, while underweight Tech and Healthcare. In Europe, both Energy and Materials have underperformed woefully, while IT and Healthcare on the short side have outperformed. In the US, Energy has been a laggard while Technology and Consumer Discretionary have outperformed.

However, if the cause of significant underperformance within the FCF Yield style could be wholly explained by sector skews within the FCF Yield style, then one would expect the performance of a sector-neutral version, which irons out these skews, to be significantly different from the selection of a screening across the market. We compare the non-sector-neutral and the sector-neutral versions of high FCF stocks vs. a market ex Financials and ex Technology benchmark in Exhibit 115 and Exhibit 116. Even though the performance of sector-neutral High FCF Yield is better than the non-sector neutral version in Europe, it still underperforms strongly. While in the US the performance of both versions is quite similar. We therefore conclude that even after adjusting for sector skews in the construction of the FCF Yield style, there remains substantial underperformance of high-FCF-yielding stocks.

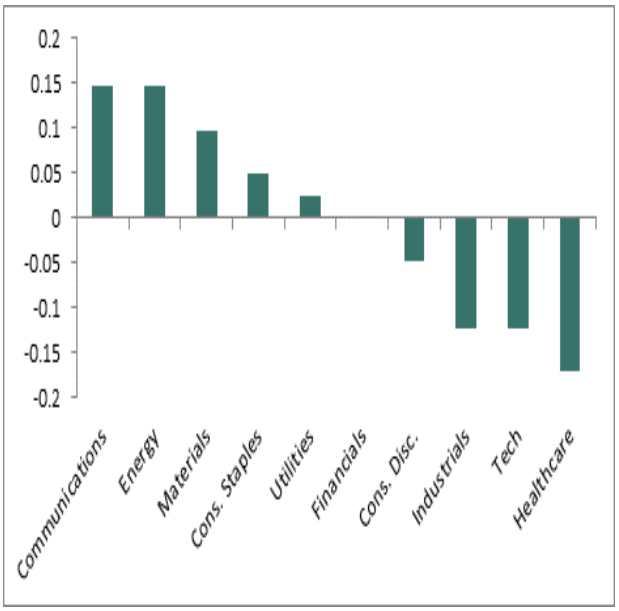
EXHIBIT 113: **US forward FCF Yield sector exposure**



Note: Chart shows the net sector exposures of high-FCF-yield stocks relative to low-FCF stocks for our FCF Yield style based on 12-month forward FCF yield.

Source: IBES, FactSet, and Bernstein analysis

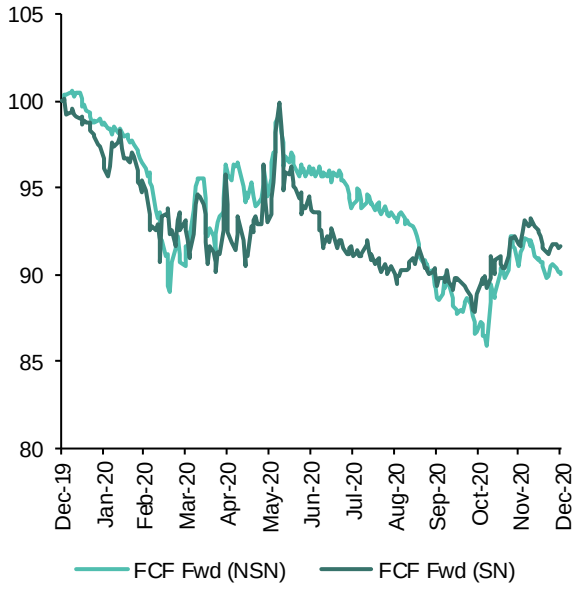
EXHIBIT 114: **Europe forward FCF Yield sector exposure**



Note: Chart shows the net sector exposures of high-FCF-yield stocks relative to low-FCF stocks for our FCF Yield style based on 12-month forward FCF yield.

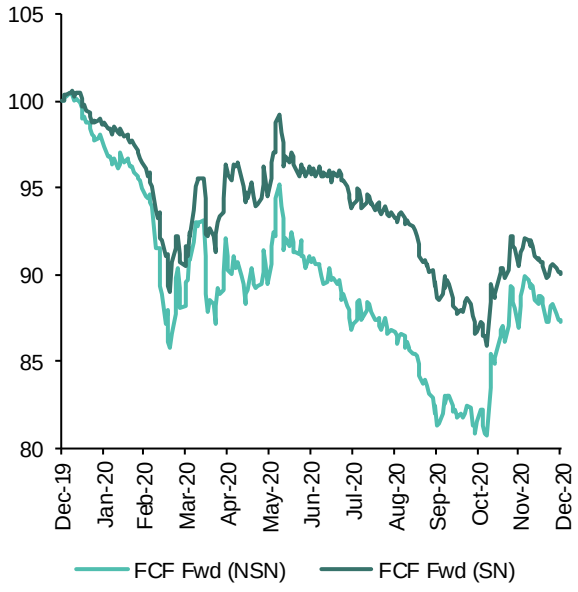
Source: IBES, FactSet, and Bernstein analysis

EXHIBIT 115: **US High FCF Yield performance vs. benchmark ex Financials and Tech**



Source: IBES, FactSet, and Bernstein analysis

EXHIBIT 116: **Europe High FCF Yield performance vs. benchmark ex Financials and Tech**



Source: IBES, FactSet, and Bernstein analysis

Component groups within the FCF factor

We express the view in the "Inflation, Investing, and the Coming of MMT" chapter that extensive fiscal and monetary stimulus, combined with potential supply bottlenecks may eventually lead to a more significant rise in inflation over the next one-year-plus horizon in conjunction with action to prevent a corresponding steepening of the yield curve. Can FCF as a whole, or at least elements within FCF outperform should both these conditions materialize? We show in the "Value is Dead, Long Live Value" chapter that there are stock groupings within Value that are more sensitive to inflation expectations and less sensitive to changes in the yield curve and, therefore, could provide investors with a more tailored list of names to profit from these macro conditions. We carried out a similar analysis here using the subgroups within our FCF models in the US and Europe (see Exhibit 117 and Exhibit 118).

We regressed six-month rolling long-short returns for trailing FCF Yield and forward FCF Yield models vs. contemporaneous changes in inflation expectations, proxied by six-month changes in 10-year breakeven rates and six-month changes in the 10-year to three-month yield curve.

Since 2009, returns of FCF Yield overall and the subgroups within FCF Yield have exhibited higher sensitivities to changes in inflation expectations than to the yield curve in most cases. In the US, all the models tested exhibited a strong positive relationship with changes in the 10-year breakeven rate with all but the overall trailing FCF Yield model showing a significantly positive relationship. In Europe, the results are a bit more mixed but the coefficients on inflation expectations for all the FCF models are positive, if not as significant in Europe as in the US. Interestingly, the inflation expectation t-stats tend to be higher for the models based on forward measures of FCF Yield than for trailing FCF Yield.

EXHIBIT 117: **US: sensitivity of long-short returns to changes in inflation expectations and yield curve**

Factor	Label	Intercept	10Yr Breakeven	Yield Curve	R sq
FCF Yield (trailing)	Coeff	0.01	0.03	0.00	0.03
	T	1.92	1.59	0.24	
FCF Yield (Forward)	Coeff	0.00	0.07	-0.01	0.11
	T	0.01	3.78	-0.76	
FCF Commodity	Coeff	0.01	0.08	-0.05	0.08
	T	1.61	2.91	-2.65	
FCF Cyclical	Coeff	0.00	0.05	0.02	0.08
	T	-0.48	2.14	1.28	
FCF Other	Coeff	0.00	0.06	0.02	0.15
	T	-0.14	3.28	1.55	
Fwd FCF Commodity	Coeff	0.04	0.08	-0.03	0.05
	T	5.17	2.65	-1.68	
Fwd FCF Cyclical	Coeff	0.01	0.14	-0.03	0.17
	T	1.11	5.00	-1.60	
Fwd FCF Other	Coeff	-0.03	0.05	0.03	0.13
	T	-4.35	2.54	1.99	

Note: Regressions on six-month returns of long-short FCF subgroups against contemporaneous six-month changes in the monthly frequency US 10-year to three-month yield curve and monthly US 10-year breakeven. Data from December 2009 to August 2020. The green/light gray shading highlights where the relationship is positive and statistically significant. The red/dark gray shading highlights where the relationship is negative and statistically significant.

Source: FactSet, IBES, and Bernstein analysis

EXHIBIT 118: **Europe: sensitivity of long-short returns to changes in inflation expectations and yield curve**

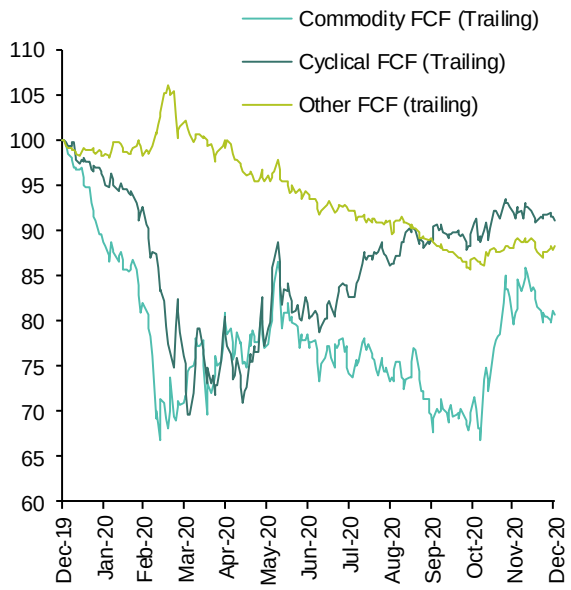
Factor	Label	Intercept	10Yr Breakeven	Yield Curve	R sq
FCF Yield (trailing)	Coeff	0.02	0.00	-0.01	0.00
	T	3.06	0.16	-0.43	
FCF Yield (Forward)	Coeff	0.01	0.05	0.01	0.05
	T	2.08	1.65	0.45	
FCF Commodity	Coeff	0.04	0.06	0.07	0.13
	T	4.57	1.46	2.26	
FCF Cyclical	Coeff	0.04	0.01	0.01	0.01
	T	4.76	0.25	0.52	
FCF Other	Coeff	-0.01	0.01	-0.05	0.07
	T	-1.83	0.47	-2.60	
Fwd FCF Commodity	Coeff	0.01	0.20	-0.01	0.13
	T	0.89	3.56	-0.18	
Fwd FCF Cyclical	Coeff	0.03	0.03	0.05	0.11
	T	5.19	0.86	2.42	
Fwd FCF Other	Coeff	-0.01	0.05	-0.04	0.04
	T	-1.88	1.80	-2.23	

Note: Regressions on six-month returns of long-short FCF subgroups against contemporaneous six-month changes in the monthly frequency 10-year to three-month yield curve (German) and monthly German 10-year breakeven. Data from December 2009 to August 2020. The green/light gray shading highlights where the relationship is positive and statistically significant. The red/dark gray shading highlights where the relationship is negative and statistically significant.

Source: FactSet, IBES, and Bernstein analysis

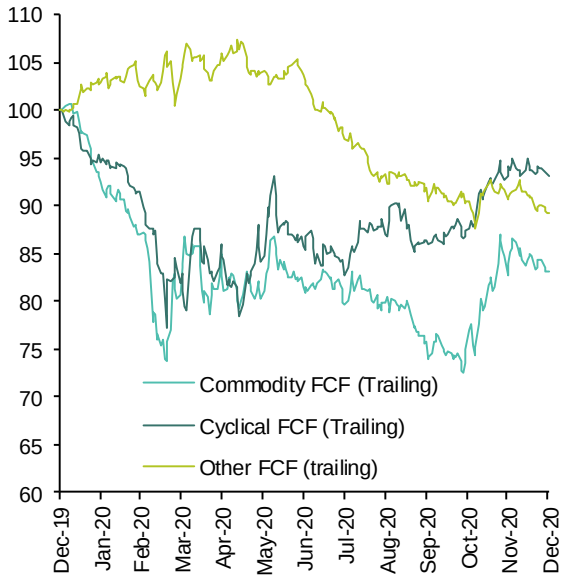
While FCF as a whole has underperformed strongly in 2020 as inflation expectations have started to rise, we think there may be subgroupings within the FCF factor that have begun to respond (see Exhibit 119 to Exhibit 122). We split both of our trailing and forward high FCF yield model constituents into three groups: the "commodity cyclicals" comprised of Energy and Materials stocks, the "core cyclical" grouping made up of Industrials and Consumer Discretionary stocks, and the remaining stocks were put into the “other” category. We tracked the performance of these baskets vs. our equal-weighted ex Financials benchmark in the US and Europe. Since March, when the equity market troughed, we have seen a distinct outperformance of the high-yielding cyclical group of stocks in both the US and Europe, and for models using both trailing and forward FCF yields. At the same time, both the high-yielding commodity stocks and the "other" stocks have underperformed the benchmark or have performed in line with the benchmark.

EXHIBIT 119: **US: trailing FCF Yield (January 2021)**



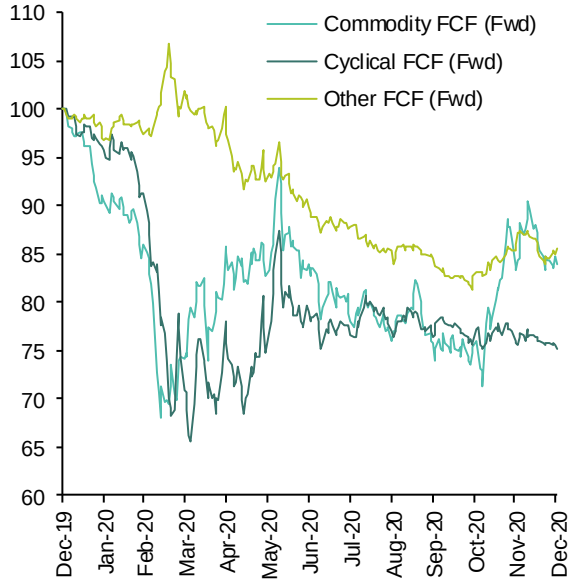
Source: FactSet, IBES, and Bernstein analysis

EXHIBIT 120: **Europe: trailing FCF Yield (January 2021)**



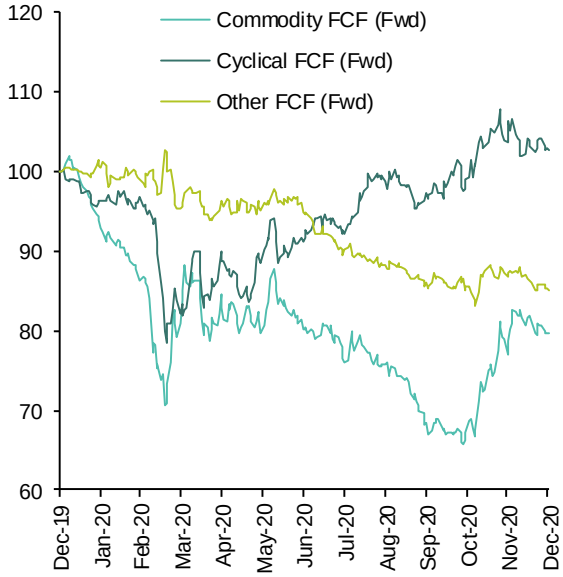
Source: FactSet, IBES, and Bernstein analysis

EXHIBIT 121: **US: forward FCF Yield**



Source: FactSet, IBES, and Bernstein analysis

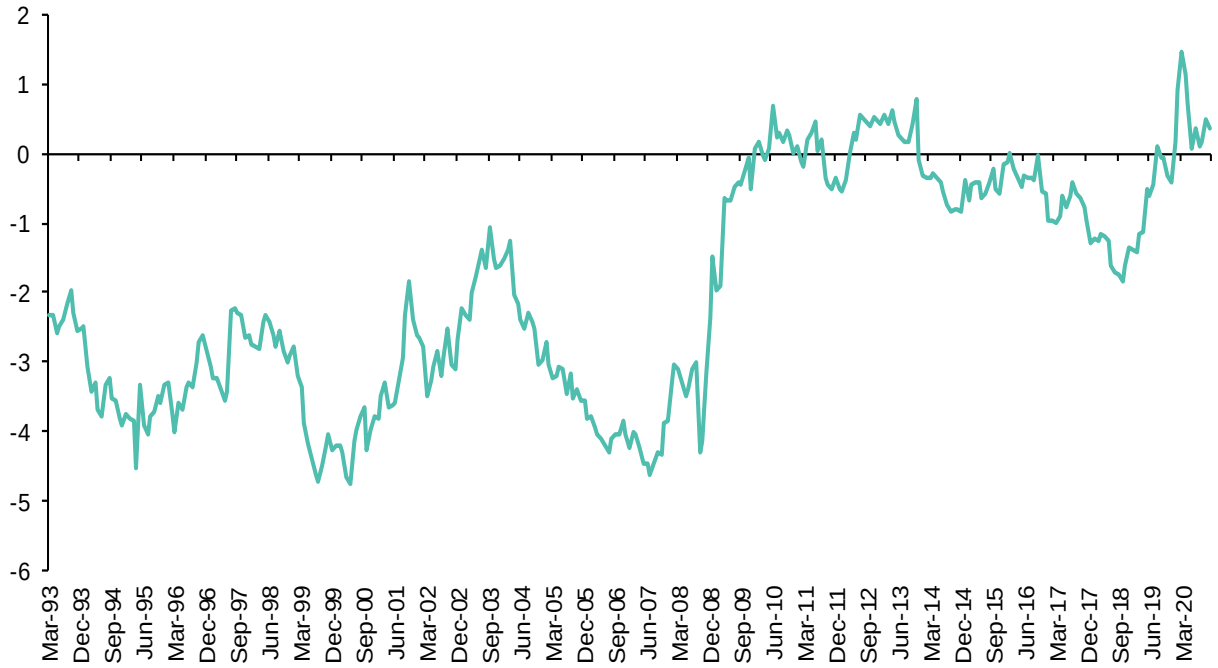
EXHIBIT 122: **Europe: forward FCF Yield**



Source: FactSet, IBES, and Bernstein analysis

Beyond a tactical horizon, there is also a clear cross-asset strategic argument for high FCF exposure. The dividend yield of US high FCF stocks is currently higher than that of investment-grade credit, with the spread near the top of the range over the past 27 years (see Exhibit 123).

EXHIBIT 123: **US FCF Yield-Dividend spread vs. US AAA investment-grade credit yield**



Note: Chart shows the spread of the median dividend yield of the US High FCF Yield basket relative to S&P Global AAA Investment Grade Bond Index Yield.

Source: MSCI, S&P Global, and Bernstein analysis

We present names of stocks in Exhibit 124 and Exhibit 125 from the components of High FCF Yield that we think will benefit from the themes we have discussed in this chapter.

We advocate that investors gain exposure to the "cyclicals" component of the High FCF Yield baskets, as these stocks have already started to respond tactically to an uptick in inflation expectations and can provide investors with quality stocks geared toward any rebound in Value. We also like the high dividend yields and stability on offer from the Consumer Staples stocks within the high FCF basket and would buy those. In addition, we think once inflation starts to feature in the economy over the next six to 12 months, the commodity stocks should become more attractive and respond to the inflationary stimulus.

EXHIBIT 124: **US High Forward FCF recommended stocks**

Region	Subgroup	Sector	Sedol	Company	Bernstein Rating
US	COMMODITY	ENERGY	B3K3L40	MARATHON PETROLEUM	
US	COMMODITY	ENERGY	B1YWRK7	CONCHO RESOURCES	O
US	COMMODITY	ENERGY	2838555	CHEVRON CORP	
US	COMMODITY	ENERGY	2654364	CHENIERE ENERGY	O
US	COMMODITY	ENERGY	2967181	WILLIAMS COS	O
US	COMMODITY	ENERGY	B3NQ4P8	KINDER MORGAN P	O
US	COMMODITY	ENERGY	2162340	CABOT OIL & GAS CORP	
US	COMMODITY	ENERGY	2130109	ONEOK	M
US	COMMODITY	ENERGY	2655408	OCCIDENTAL PETROLEUM	
US	COMMODITY	MATERIALS	2298386	EASTMAN CHEMICAL CO	
US	COMMODITY	MATERIALS	2636607	NEWMONT CORP	O
US	COMMODITY	MATERIALS	2352118	FREEPORT MCMORAN B	
US	COMMODITY	MATERIALS	B0G4K50	CF INDUSTRIES HOLDINGS	M
US	CYCLICAL	CONSUMER DISCRETIONARY	2822019	ADVANCE AUTO PARTS	
US	CYCLICAL	CONSUMER DISCRETIONARY	2598699	MOHAWK INDUSTRIES	
US	CYCLICAL	CONSUMER DISCRETIONARY	2637785	NVR	
US	CYCLICAL	CONSUMER DISCRETIONARY	2111955	BORGWARNER	
US	CYCLICAL	CONSUMER DISCRETIONARY	B570P91	LEAR CORP	
US	CYCLICAL	CONSUMER DISCRETIONARY	2635701	NEWELL BRANDS	
US	CYCLICAL	CONSUMER DISCRETIONARY	2971029	LKQ CORP	
US	CYCLICAL	CONSUMER DISCRETIONARY	2293819	EBAY	
US	CYCLICAL	CONSUMER DISCRETIONARY	2250687	HORTON (DR)	
US	CYCLICAL	CONSUMER DISCRETIONARY	2960384	WHIRLPOOL CORP	
US	CYCLICAL	CONSUMER DISCRETIONARY	2511920	LENNAR CORP A	
US	CYCLICAL	CONSUMER DISCRETIONARY	2708841	PULTEGROUP	
US	CYCLICAL	INDUSTRIALS	2818740	SNAP-ON	
US	CYCLICAL	INDUSTRIALS	2648806	NORTHROP GRUMMAN CORP	O
US	CYCLICAL	INDUSTRIALS	2365161	GENERAL DYNAMICS CORP	M
US	CYCLICAL	INDUSTRIALS	BF0LKD0	KNIGHT-SWIFT TRANSPORT	
US	CYCLICAL	INDUSTRIALS	BK9DTN5	L3HARRIS TECHNOLOGIES	O
US	CYCLICAL	INDUSTRIALS	2955733	WABTEC CORP	
US	CYCLICAL	INDUSTRIALS	B1FW7Q2	OWENS CORNING	
US	CYCLICAL	INDUSTRIALS	2134781	UNITED RENTALS	M
US	OTHER	CONSUMER STAPLES	BTN1Y44	WALGREENS BOOTS ALLIANCE	
US	OTHER	CONSUMER STAPLES	B067BM3	MOLSON COORS BREWING B	

Note: O= Outperform rating, M= Market-Perform rating, U = Underperform rating. Further details of the research and important disclosures of the above covered securities are available on Bernstein Research website: www.bernsteinresearch.com. Other stocks are not covered by Bernstein.

Source: FactSet, IBES, and Bernstein analysis

EXHIBIT 125: **Europe High Forward FCF recommended stocks**

Region	Subgroup	Sector	Sedol	Company	Bernstein Rating
Europe	COMMODITY	ENERGY	B15C557	TOTAL	M
Europe	COMMODITY	ENERGY	5669354	REPSOL	O
Europe	COMMODITY	ENERGY	B03MLX2	ROYAL DUTCH SHELL A	O
Europe	COMMODITY	ENERGY	B03MM40	ROYAL DUTCH SHELL B	O
Europe	COMMODITY	ENERGY	4651459	OMV AG	
Europe	COMMODITY	ENERGY	0798059	BP	O
Europe	COMMODITY	ENERGY	7133608	EQUINOR	M
Europe	COMMODITY	MATERIALS	7110753	LAFARGEHOLCIM	
Europe	COMMODITY	MATERIALS	BH0P3Z9	BHP GROUP (GB)	O
Europe	COMMODITY	MATERIALS	B1XZS82	ANGLO AMERICAN	M
Europe	COMMODITY	MATERIALS	0718875	RIO TINTO PLC (GB)	M
Europe	COMMODITY	MATERIALS	5120679	HEIDELBERGCEMENT	
Europe	COMMODITY	MATERIALS	B4T3BW6	GLENCORE	M
Europe	CYCLICAL	CONSUMER DISCRETIONARY	4588364	MICHELIN	
Europe	CYCLICAL	CONSUMER DISCRETIONARY	5687431	HENNES & MAURITZ B	M
Europe	CYCLICAL	CONSUMER DISCRETIONARY	0682538	PERSIMMON	
Europe	CYCLICAL	CONSUMER DISCRETIONARY	BJDS7L3	PROSUS N	
Europe	CYCLICAL	CONSUMER DISCRETIONARY	4712798	RENAULT	O
Europe	CYCLICAL	INDUSTRIALS	4002121	BOUYGUES	
Europe	CYCLICAL	INDUSTRIALS	7667163	ATLANTIA	
Europe	OTHER	CONSUMER STAPLES	BD0Q398	AHOLD DELHAIZE	
Europe	OTHER	CONSUMER STAPLES	5641567	CARREFOUR	
Europe	OTHER	CONSUMER STAPLES	0287580	BRITISH AMERICAN TOBACCO	
Europe	OTHER	CONSUMER STAPLES	0454492	IMPERIAL BRANDS	

Notes: O= Outperform rating, M= Market-Perform rating, U = Underperform rating. Further details of the research and important disclosures of these covered securities are available on Bernstein Research website: www.bernsteinresearch.com. Other stocks are not covered by Bernstein.

Source: FactSet, IBES, and Bernstein analysis

WHY US GROWTH CAN CONTINUE TO SHINE

OVERVIEW

- How far can the US Growth trade of recent years continue to run? We make the case that both equity and cross-asset PMs should continue to overweight US Growth in their portfolios.
- From a macro perspective, the key reason is that real rates are likely to stay low for an extended period. The persistence of growth for high-growth companies has increased in recent years. That ability to maintain superior growth along with lower discount rates means long-duration equities can maintain a high multiple.
- We show that the absolute valuation of Growth equities can be justified if rates stay at this level. Yes, the relative multiple of high- vs. low-Growth equities has increased, but is very far from prior extremes. Moreover, the stocks in our Sustainable Growth basket (overweight Tech, Communications, and Healthcare) trade at less than the market multiple because of the collapse in forward earnings for cyclical companies.
- For the first time in a decade, US corporates have become net issuers of equity, but Growth stocks are the ones likely to be able to maintain buybacks (previously the main source of demand for stocks).
- We should be clear: with valuations high, it is likely that near-term volatility increases. This means that in the short term there are clear risks and Growth stocks need to be held alongside downside protection trades. But we think investors are forced in the long term to buy more equities despite valuations. We show, both for equity PMs and multi-asset investors, that US Growth is a key part of portfolios.

DETAILS

One of the most contentious investment issues today is how far the US growth trade can continue, especially for the mega-cap names. 2020 has seen an extraordinary acceleration in what was an already multi-year trend of outperformance. Surely, it cannot continue? The commentary is very focused on the valuation of such stocks relative to the broader market and drawing comparisons, with some inevitability, to the TMT bubble of 2000. However, we think that may be looking in the wrong place, given the economic and capital markets outlook but also the range of assets available to investors.

We think investors should remain overweight US Growth, both within the context of global equity portfolios and as part of a cross-asset allocation. The two main macro threats to this are rising rates (which we do not think likely in the near term) and political risks (tax or a move against perceived quasi monopolies).

From this point of view, the important macro backdrop for these stocks is:

- Real rates likely stay low/negative for an extended period. We think that once we get through the present deflationary shock, inflation will probably rise. But there are good reasons to suppose that this does not trigger a usual rise in real rates, thus favoring long-duration assets within equities.

- The ability of incumbent high-growth/high-profitability companies to remain high growth/profitability has been increasing, boosting the case for such equities specifically from the point of view of the contribution of long-horizon cash flows to net present value.

- Investors facing negative real returns on most other asset classes are forced to buy in an already very expensive equity market. Yes, Growth as a factor might be increasingly "expensive," but the rest of the market is not really cheap as forward earnings expectations have collapsed for the cyclicals and no one has a clue what those earnings are going to be for cyclical stocks.

- For the first time in a decade, US corporates are net issuers of equity. Until recently, buybacks had swamped all other sources of demand for listed equities. The market ex large-cap Growth is staying in net issuance mode…this leaves the big Growth names as the only ones capable of buybacks.

Set against that, there is the issue that this is the worst recession in a century, which hits any company with cyclical components to revenues, such as advertising. We discuss what this means for Growth names. When valuations, in general, are extended it means volatility is likely to be high. This is true for the market overall and for Growth. Stocks are likely to be very sensitive in the short term to negative newsflow; hence, the need to hold the Growth trade in conjunction with downside protection, which we discuss in this chapter. However, the most serious strategic risks for the Growth trade are: (1) the risk, despite our expectations, that rates do in fact rise (in which case one should own Value/Financials) and (2) politics. The political risk likely both from a potential increase in tax burdens and from the possibility of a concerted move against quasi-monopolies. The path of taxes globally is upward from here for years to come. So, this is an issue for the whole market (and all investment advice). Another strand in our strategic outlook is that the pendulum is swinging away from the very pro-corporate political climate of recent years. Presumably at *some* point, the political environment will become less friendly to very large companies. However, it looks like that may require another US election cycle, however much EU governments scream about it. Moreover, it is not like the rest of the market is free from political risk. Investors need to realize we are in a new regime; government is going to be semi-permanently much more involved in the economy and markets.

It may also be wise to pause and think, almost from a common sense perspective, can the amount of market cap that has been added to US Growth companies in 2020 really make sense? The pandemic has upended so many aspects of life and yet the dominance of US Growth has just continued along a path that was set in recent years. The fact that the market overall has recovered to pre-pandemic levels is, in a sense, shocking, and the gulf between prices and "fundamentals" is wider than it has ever been before. This makes it likely that near-term volatility will remain high as the downside reaction to disappointing news is likely to be high. For Growth stocks this risk is also high — risks at the macro level coming from

their exposure to changes in interest rate expectations being high and risks of any change at the micro level in cash flow projections. Investors don't have a great set of options right now, but we think that both relative to equities and also in a cross-asset sense, US Growth needs to be part of a portfolio.

What valuation for Growth?

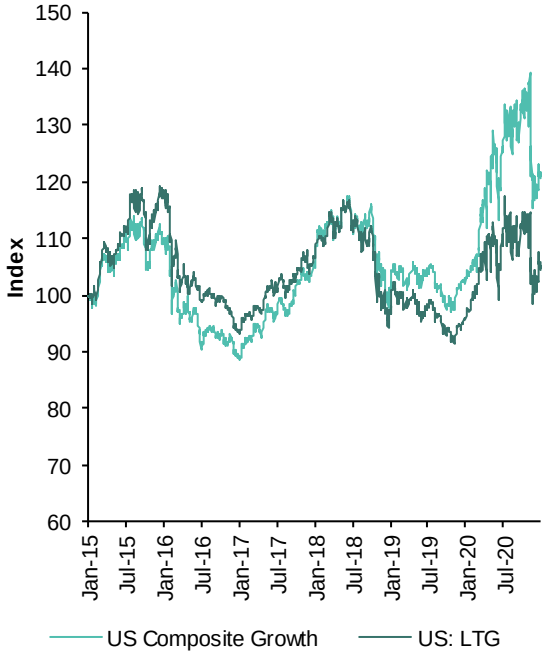
Large, high-growth stocks have performed extremely well since the end of 2019. Exhibit 126 shows how large companies extended their leadership over the average company in the US in recent years, though they have recently given back some of this. As Exhibit 127 shows, since November 2019, High Composite Growth stocks in the US have outperformed Low Growth stocks by 24% , and High Long-term Growth has outperformed Low Growth by 14%.

EXHIBIT 126: **Cap-weighted indices have outperformed equal-weighted, but have given back some of this recently**

Note: Shows the relative performance of the market cap weighted MSCI US and Europe indices relative to the equal-weighted performance of the MSCI US and Europe indices.

Source: MSCI and Bernstein analysis

EXHIBIT 127: **Growth factor performance**

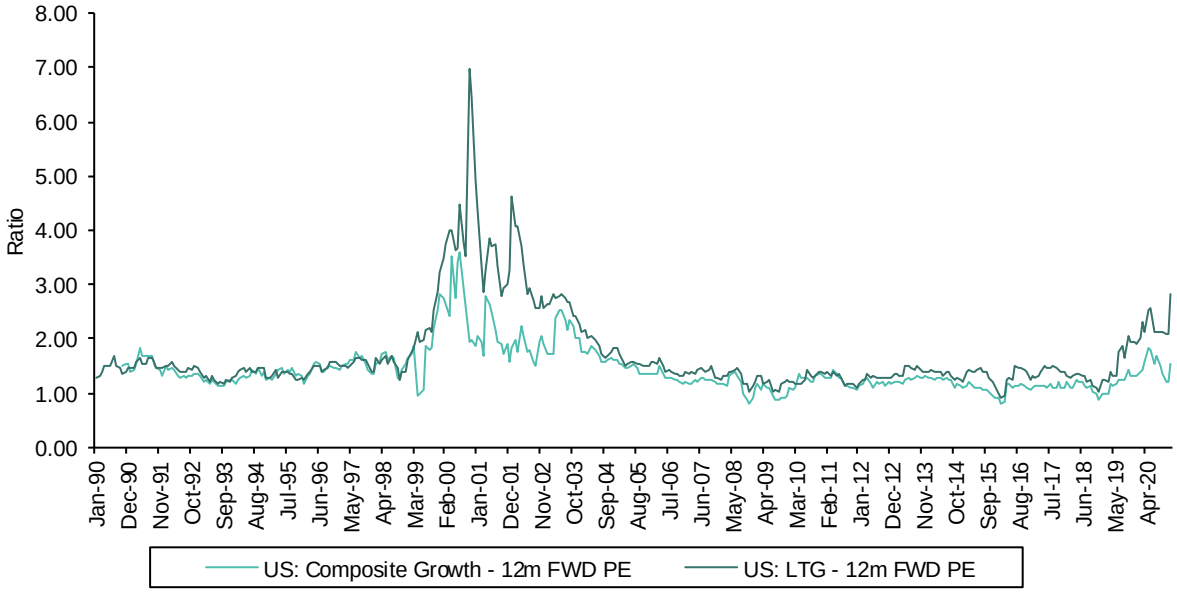


Note: LTG refers to consensus five-year EPS growth estimates. Composite Growth is an equal-weighted blend of LTG, FY0FY3 and (1- dividend payout ratio)* 3-year average trailing ROE.

Source: FactSet, IBES, and Bernstein analysis

The valuation multiple of high-growth companies has also increased significantly since the start of 2020 (see Exhibit 128). So yes, it is high in relative terms compared to the last 10 years and the near-term risks from this cannot be dismissed, but is not yet extreme in our view and it is nowhere near the multiple reached around the dot-com bubble.

EXHIBIT 128: **Valuation of high- vs. low-growth stocks (Composite Growth and Long-Term Growth 12-month forward PE)**



Source: FactSet, IBES, and Bernstein analysis

What about absolute multiples? The collapse in the discount rate in 2020 and our assumption that rates stay low is the key part in justifying (or not) the valuation on high-growth large-cap names.

One way to go about this is to use a simple extension of a DCF model. The huge caveat up front is that as discount rates collapse, the weight of the NPV attributable to cash flows far in the future increases. Those cash flows are hard to forecast, so the errors in valuing on an absolute basis explodes;[19] in a sense, the "duration risk" of Growth stocks measured in this way has increased. In this section, we use an "H model," which is a special case of DCF models where we assume an initial high-growth phase, followed by a linear decline to a lower terminal-growth phase to calculate what would be the justified PE ratio for the basket of our Sustainable Growth stocks (full list in Exhibit 135) under various different discount rates and growth decay times. We have discussed the H model in detail in our previous research on Growth stocks (see: Portfolio Strategy: What is a Growth stock today?). Note, here we use our Sustainable Growth list just as an example. It is somewhat restrictive in that it excludes companies that do not have 10-year track records of EPS growth, rather critical for some new Growth names, but it is here as an example of what valuations may be justified, given discount rates.

[19] Indeed, the concept of absolute valuation requires the existence of a risk-free rate. We are not sure such a thing exists anymore, as we have discussed elsewhere. Absolute valuation of financial assets may no longer really be possible and maybe all we have is a series of nested risk premia. But we will leave that debate aside for purposes of this chapter.

The NPV of the asset with cash flows described by the H model is calculated as:

$$V_0 = \frac{D_0\left(1 + g_L\right) + D_0 H(g_S - g_L)}{r - g_L}$$

V_0 = value per share at $t = 0$

D_0 = current dividend

r = required rate of return on equity

H = half-life in years of the high-growth period (i.e., high-growth period = $2H$ years)

g_S = initial short-term dividend growth rate

g_L = normal long-term dividend growth rate of Year $2H$

We can then substitute the dividend as EPS multiplied by the dividend payout ratio and express the justified PE as follows:

$$Justified\ PE = \frac{Payout\left(1 + g_L\right) + Payout * H(g_S - g_L)}{r - g_L}$$

In Exhibit 129, we use the median payout ratio of the current Sustainable Growth basket of 27% and assume that earnings growth starts at 11% and declines to 5% in the long run (the 11% represents the current expected long-term EPS growth rate of the group). Exhibit 129 illustrates how the justified PE multiple varies with different assumptions about the discount rate and the decay rate (the time over which the growth rate declines to the long-term average). The current PE of our Sustainable Growth portfolio is "only" 20.3x. With a discount rate on its cost of capital up to 6%, this would imply that valuations can be justified.

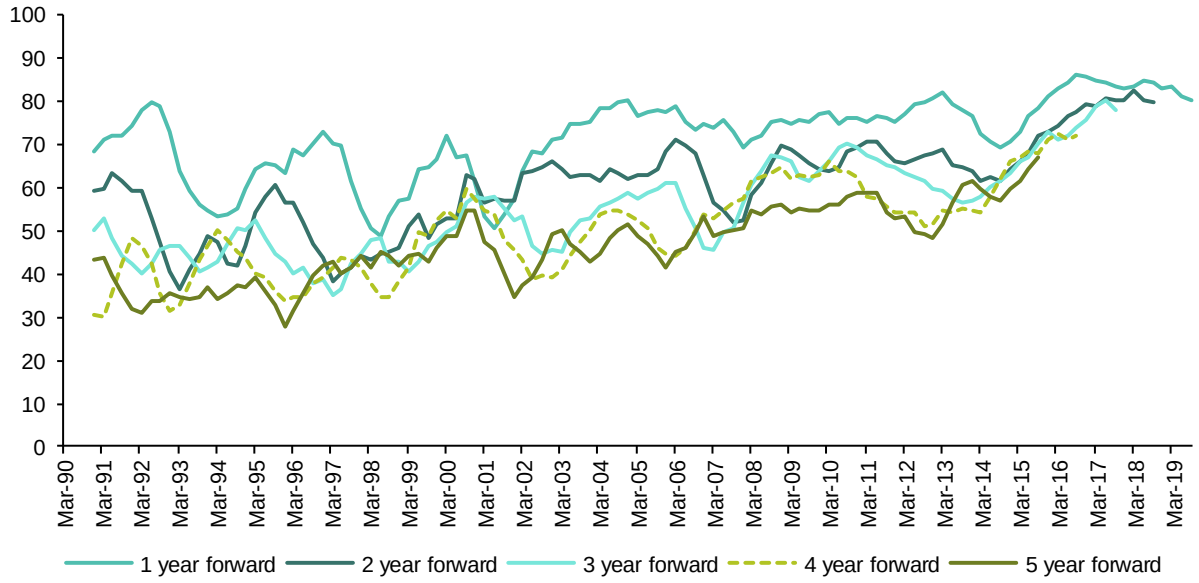
EXHIBIT 129: **Justified PE multiple based on discount rate and growth decay time**

		Discount Rate						
		5.5	**6**	**7**	**8**	**9**	**10**	**11**
Decay	**2**	60.21	30.11	15.05	10.04	7.53	6.02	5.02
	4	63.72	31.86	15.93	10.62	7.97	6.37	5.31
	6	67.23	33.62	16.81	11.21	8.40	6.72	5.60
	8	70.74	35.37	17.69	11.79	8.84	7.07	5.90
	10	74.25	37.13	18.56	12.38	9.28	7.43	6.19
	12	77.76	38.88	19.44	12.96	9.72	7.78	6.48

Source: FactSet, MSCI, IBES, and Bernstein analysis

This valuation relies on the visibility of forward growth. But aside from rising discount rates, the other remarkable change in recent years has been the increased power of high-growth companies to remain high growth (see Exhibit 130). It is low discount rates combined with greater sustainability of growth that justifies the multiple.

EXHIBIT 130: **High profitability companies are staying high profitability for longer: percentage of stocks in the high ROE decile at time t which are in either decile 1 or 2 one to five years later**

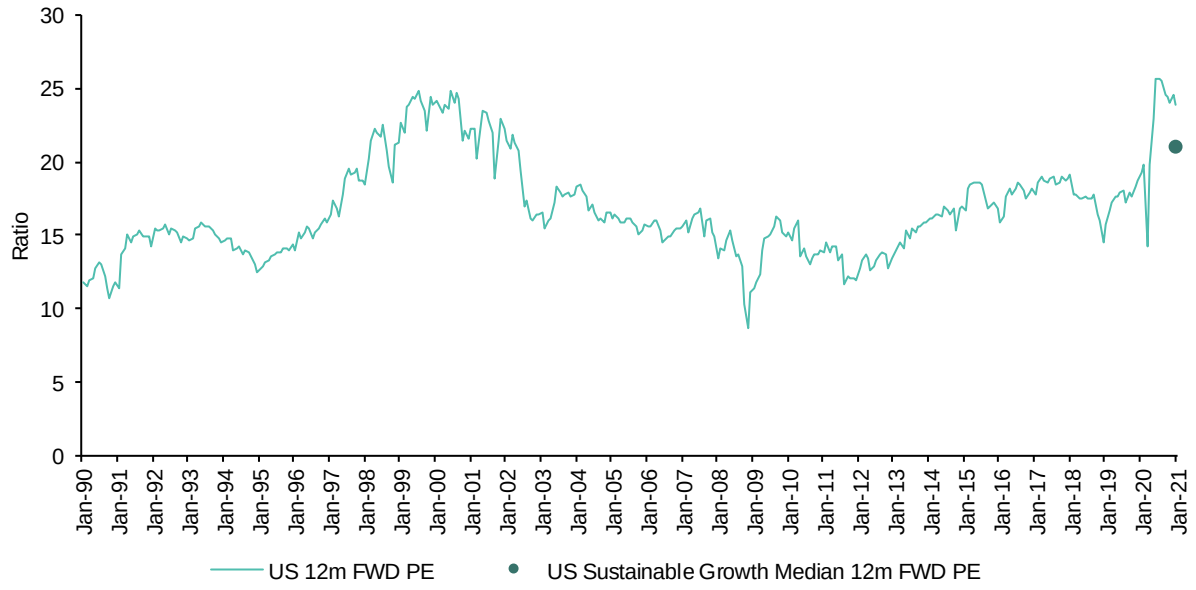


Note: In each quarter since 1990, we split the stocks in the MSCI US index into groups by ROE decile (within sectors) and calculate the percentage of stocks in the High ROE decile at time t that were in the highest two deciles over the next one-to-five-year period. A four-quarter smoothing is applied to the quarterly percentages.

Source: FactSet and Bernstein analysis

On a relative basis, the PE of the Sustainable Growth group also does not look extended. The median 12-month forward PE multiple of the Sustainable Growth basket is currently close to 20x, which is lower than the overall market multiple of 25x (see Exhibit 131). This is in part because of the collapse in the expected forward earnings of many cyclical sectors.

EXHIBIT 131: **Sustainable Growth basket 12-month forward PE vs. US market**



Note: The line shows the valuation based on 12-month forward PE of the US market. The dot shows the current median 12-month forward PE, based on January 2022 consensus forecast EPS, for the constituents of our US Sustainable Growth stock basket.

Source: FactSet, IBES, MSCI, and Bernstein analysis

How likely is it that rates stay low? We think policy will be much more tolerant of an inflation overshoot vs. current target rates. Government debt levels are as high as they were at the end of WWII, but there is no need to rebuild the global capital stock nor are demographics so favorable, thus making inflation a more needed route out of the current debt levels. We think the policy response to the pandemic will be inflationary, but if anything the danger is that it may be hard to get inflation to rise, further increasing the likelihood that rates stay very low.

Not only would low real rates be beneficial for the absolute valuation of Growth, but — for investors who are tied to making a relative outperformance vs. the market — they also dent the prospects of the other side of the trade. A significant part of the "Value" trade now — at least, if defined in a traditional way — is Financials, which will likely find it hard to stage a meaningful strategic outperformance if rates stay low. Meanwhile, for investors who are allowed to invest across the asset spectrum, assets will have to migrate away from high-grade fixed income and also from real estate.

Buybacks, issuance, demand for equities, and the point of the market

2020 saw a huge shift in the net demand for equities. For the past decade, the largest source of demand for US equities has been from US corporates themselves, far outstripping demand from investors.

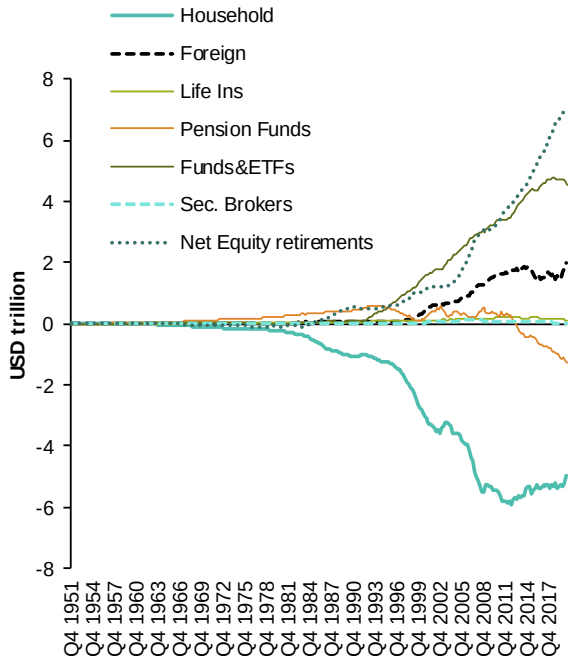
For all of the last decade, US corporates have been a net buyer of stocks, until Q2 2020 when they turned net issuer. This makes sense, given the shift in macro outlook and an

implied strong preference of the Fed to prioritize the capital-raising role of credit and equity markets over their role for price discovery[20] (see Exhibit 132).

Much has been said about how lower discount rates raise the fair value of the whole market; this is true. But at the same time, the main buyer of equities has stopped buying. The rally since March 2020 has also happened while buyers of funds stayed away and did not buy either (in equities at least, not so in credit) (see Exhibit 133).

It is the large US Growth companies that are the most likely to be able to maintain buybacks, as we discuss later in this chapter, thus lending them further relative support.

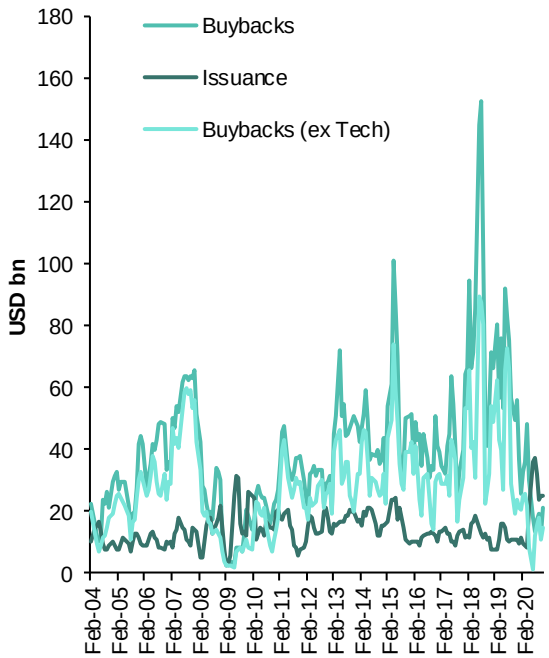
EXHIBIT 132: **Corporates have been the main buyers of US equities**



Note: Shows flow into US Corporate equities from sectors of the economy as defined by the US flow of funds financial accounts (Z1).

Source: US Federal Reserve and Bernstein analysis

EXHIBIT 133: **US corporates now issue more stock than they buyback (US Buybacks and Equity Issuance, USD Bn)**



Note: Chart shows three-month average value of stock buybacks and equity issuance announcements for companies domiciled in the US.

Source: Bloomberg and Bernstein analysis

Tax and politics

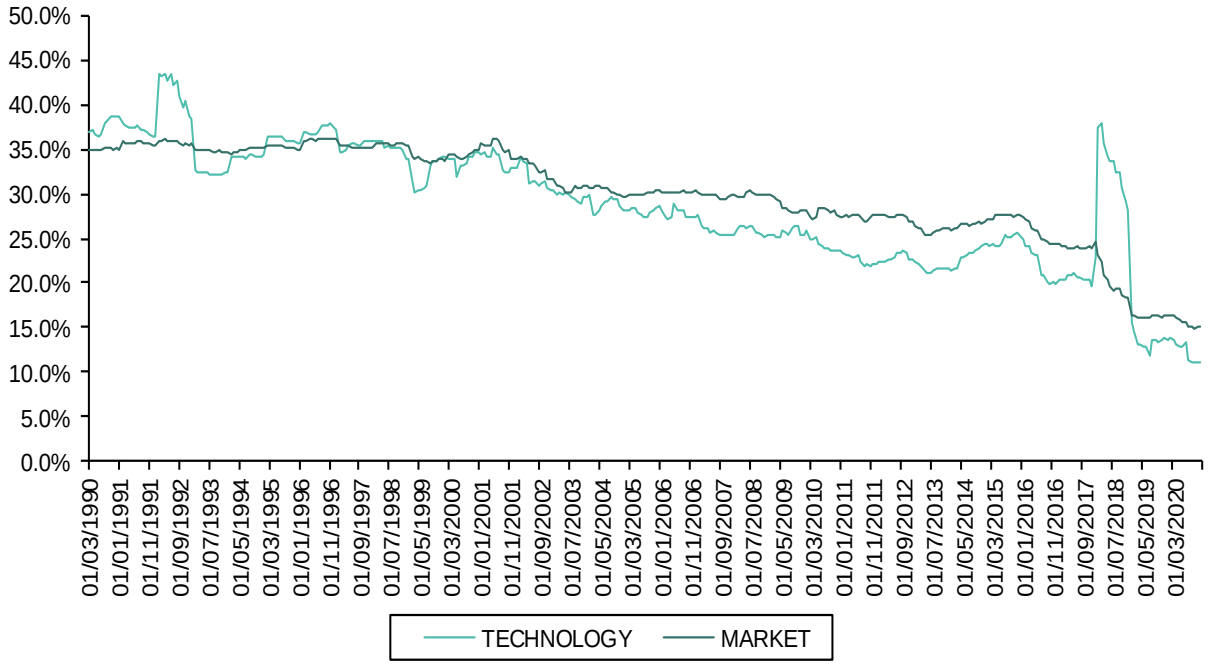
The US corporate tax rate has been trending lower since the 1990s. Exhibit 134 shows the Tech sector has benefited more from this trend than the overall market and its current effective tax rate of 13% is lower by 3 percentage points vs. the market.

One of the biggest risks, as we alluded in the introduction, is that there is a political backlash against the appearance of quasi-monopolies. This may well indeed happen in time, but does not appear to be an immediate risk. Also, there is likely to be an impact on the whole

[20] Portfolio Strategy: Has the Fed gone too far?

market from increased government presence in the economy and the market, as we have discussed in our recent strategy publications.

EXHIBIT 134: **Effective tax rate for Tech and US market overall**



Note: Ratio of market cap-weighted tax paid to pretax profit.

Source: FactSet, MSCI, and Bernstein analysis

Portfolio implications

Where does this leave Growth assets within a portfolio? With real rates likely locked low for an extended period, but with a risk that inflation rises, we think long-duration assets in the equity market can continue to trade at a premium. We consider this from the point of view of equity and cross-asset portfolios.

Within an equity context, the fear has to be that a combination of over-crowding in High Growth names and a rebound of deeply discounted Value names leads to an underperformance of Growth. However, a large weight of Value portfolios is in the Banks sector. With real rates low, little prospect of a steepening yield curve, and a massive bankruptcy and default cycle still ahead, we think the outlook for the Banks is unattractive. Outside of Banks, there could indeed be episodes of tactical Value rallies, such as we saw in late May 2020, but we think without a sustained increase in inflation and a steepening of the yield curve, Value rallies will either be tactical or confined to specific cases of undervalued companies as opposed to Value as a generic factor.

As we showed previously, despite the increase in multiples of Growth stocks, our Sustainable Growth group (with a heavy overweight of Tech, Communications, and Healthcare) actually trades at a PE discount to the market, as the forward earnings have collapsed so far in other parts of the market. We note the level of disagreement between

analysts covering Value stocks recently reached an all-time record and has since retreated from that high. Anything that materially further decreased the disagreement could help Value names.

On balance, we think equity PMs need to remain overweight US Growth. They can hedge short-term risk by holding downside protection trades in low volatility, sustainable dividend yield, and good balance sheet quality trades and by sectors such as Utilities and Consumer Staples. They can hold selected non-Financials Value stocks as an insurance against that factor tactically rallying, but they should still underweight Value.

From a cross-asset perspective, we think there is also a case to hold US Growth. From this viewpoint, the need is to hold assets that can generate positive real returns as inflation rises. This entails a large overweight on equities — the core of that can be a passive position on the market, but around that some specific trades are needed that can diversify equity risk (gold, low volatility, sustainable yield, and carry trades), but there is also a need to hold assets that are exposed to underlying earnings streams that can deliver positive real-term Growth, and the US Growth trade is a key part of that.

The best case for big-cap Growth would be real rates staying low and higher, but moderate, inflation in the 2-4% range. Under that scenario, we think equities would eke out small positive real returns. While Growth stocks would be unlikely to continue appreciating at anything like their recent rate, they would be likely to at least outperform.

EXHIBIT 135: **US Sustainable Growth basket**

Sedol	Company	Sector	PE (12m Fwd)	Long Term EPS Gth	FY0FY3 EPS CAGR	10 Year Net Income CAGR (12m Fwd)	PEG	Rating
2857817	NETFLIX	COMMUNICATIONS	61.6	41.0	44.3	34.1	1.5	O
BYVY8G0	ALPHABET A	COMMUNICATIONS	29.0	16.5	13.5	14.4	1.8	O
2122117	TAKE-TWO INTERACTIVE SOF	COMMUNICATIONS	34.6	15.3	13.4	24.0	2.3	O
2310194	ELECTRONIC ARTS	COMMUNICATIONS	25.0	13.8	10.6	22.0	1.8	O
2000019	AMAZON.COM	CONSUMER DISCRETIONARY	74.9	36.4	39.6	31.7	2.1	O
B5B1S13	DOLLAR GENERAL CORP	CONSUMER DISCRETIONARY	20.9	16.0	18.5	15.6	1.3	M
2781585	POOL CORP	CONSUMER DISCRETIONARY	39.2	18.0	16.3	19.6	2.2	
2637785	NVR	CONSUMER DISCRETIONARY	14.1	12.0	20.2	16.9	1.2	
2900335	TRACTOR SUPPLY CO	CONSUMER DISCRETIONARY	22.4	15.3	13.9	17.0	1.5	O
2250687	HORTON (DR)	CONSUMER DISCRETIONARY	9.4	15.8	12.4	41.6	0.6	
2259101	TARGET CORP	CONSUMER DISCRETIONARY	19.7	13.1	13.2	4.8	1.5	M
B65LWX6	O'REILLY AUTOMOTIVE	CONSUMER DISCRETIONARY	19.5	12.8	13.0	15.1	1.5	
2272476	DOLLAR TREE	CONSUMER DISCRETIONARY	18.8	10.4	12.5	12.4	1.8	O
2822019	ADVANCE AUTO PARTS	CONSUMER DISCRETIONARY	17.0	11.9	9.4	5.7	1.4	
2511920	LENNAR CORP A	CONSUMER DISCRETIONARY	9.7	11.4	9.4	44.5	0.9	
B665KZ5	GENERAL MOTORS	CONSUMER DISCRETIONARY	7.2	9.2	10.8	2.2	0.8	
2983563	CARMAX	CONSUMER DISCRETIONARY	19.7	11.8	5.5	7.3	1.7	
2960384	WHIRLPOOL CORP	CONSUMER DISCRETIONARY	10.2	8.9	8.3	4.5	1.1	
BZ07BW4	MONSTER BEVERAGE	CONSUMER STAPLES	35.0	14.7	12.8	18.7	2.4	M
BD3W133	KEURIG DR PEPPER	CONSUMER STAPLES	19.8	10.4	12.6	13.2	1.9	O
2195841	CHURCH & DWIGHT CO	CONSUMER STAPLES	28.9	9.7	9.8	9.4	3.0	
2170473	CONSTELLATION BRANDS A	CONSUMER STAPLES	22.1	8.8	8.8	17.4	2.5	
2497406	KROGER CO	CONSUMER STAPLES	10.7	8.0	8.4	8.8	1.3	O
2422806	HERSHEY CO (THE)	CONSUMER STAPLES	23.2	7.8	6.5	8.3	3.0	M
2359506	GALLAGHER (ARTHUR J.)	FINANCIALS	27.4	11.3	10.4	20.1	2.4	
2494504	BLACKROCK A	FINANCIALS	20.5	10.7	11.0	9.7	1.9	
2252058	MOODY'S CORP	FINANCIALS	27.4	10.3	11.2	15.5	2.7	
BFSSDS9	INTERCONTINENTAL EXCH	FINANCIALS	24.0	10.8	9.5	19.4	2.2	
2692687	BROWN & BROWN	FINANCIALS	27.6	10.5	9.7	11.3	2.6	
2702337	PRICE (T. ROWE) GROUP	FINANCIALS	15.2	9.1	10.8	12.1	1.7	
2965107	NASDAQ	FINANCIALS	21.2	10.1	9.3	9.8	2.1	
B0J7D57	AMERIPRISE FINANCIAL	FINANCIALS	10.7	8.5	8.5	4.5	1.3	
2793610	SEI INVESTMENTS CO	FINANCIALS	17.0	12.0	4.8	7.6	1.4	
BLP1HW5	AON PLC A	FINANCIALS	20.0	7.4	8.8	9.3	2.7	
2950482	WEST PHARMACEUTICAL SVCS	HEALTHCARE	54.7	20.5	23.0	16.0	2.7	
2126335	BRISTOL-MYERS SQUIBB CO	HEALTHCARE	8.6	21.4	19.2	14.7	0.4	M
2250870	DANAHER CORP	HEALTHCARE	31.9	15.1	21.1	10.9	2.1	
2886907	THERMO FISHER SCIENTIFIC	HEALTHCARE	23.0	16.2	18.0	17.8	1.4	
2305844	PERKINELMER	HEALTHCARE	17.5	17.0	15.7	17.9	1.0	
2732903	RESMED	HEALTHCARE	41.7	22.1	10.0	12.6	1.9	
BSPHGL4	ANTHEM	HEALTHCARE	12.6	13.7	13.6	7.6	0.9	O
2807061	CENTENE CORP	HEALTHCARE	11.6	12.6	11.4	40.8	0.9	O
2917766	UNITEDHEALTH GROUP	HEALTHCARE	19.0	12.4	11.6	13.6	1.5	O
2445063	HUMANA	HEALTHCARE	18.7	12.0	11.5	7.5	1.6	M
2586122	LABORATORY CORP OF AMER	HEALTHCARE	10.8	12.4	10.4	13.3	0.9	
2881407	TELEFLEX	HEALTHCARE	32.6	12.0	9.8	11.7	2.7	
2036070	ALEXION PHARMACEUTICALS	HEALTHCARE	12.5	11.0	10.0	32.3	1.1	M
2185284	CERNER CORP	HEALTHCARE	24.8	10.6	10.2	13.4	2.3	
BHJ0775	CIGNA CORP	HEALTHCARE	10.0	10.2	10.2	18.8	1.0	M
2378534	MCKESSON CORP	HEALTHCARE	10.2	9.3	10.2	7.7	1.1	
2212706	MOLINA HEALTHCARE	HEALTHCARE	14.7	8.3	11.0	30.6	1.8	
2778844	MERCK & CO	HEALTHCARE	12.7	7.3	10.7	3.8	1.7	O
2023607	AMGEN	HEALTHCARE	13.8	6.7	7.0	6.8	2.1	M
BF0LKD0	KNIGHT-SWIFT TRANSPORT	INDUSTRIALS	12.8	16.5	17.1	22.1	0.8	
2656423	OLD DOMINION FREIGHT	INDUSTRIALS	29.8	14.4	14.2	24.4	2.1	
BK9DTN5	L3HARRIS TECHNOLOGIES	INDUSTRIALS	14.5	13.6	13.6	15.0	1.1	O
2641838	NORDSON CORP	INDUSTRIALS	30.6	14.1	12.3	8.1	2.2	
B1FW7Q2	OWENS CORNING	INDUSTRIALS	14.2	13.2	11.9	9.4	1.1	
2607647	KANSAS CITY SOUTHERN	INDUSTRIALS	23.9	11.7	12.0	12.3	2.0	
2671501	PARKER HANNIFIN CORP	INDUSTRIALS	22.2	9.3	13.8	5.4	2.4	
2445416	HUNT (J.B.) TRANSPORT	INDUSTRIALS	23.9	11.7	10.5	9.5	2.1	M
2469052	JACOBS ENGINEERING GROUP	INDUSTRIALS	18.6	10.2	11.2	8.9	1.8	O
2517382	UNITED PARCEL SERVICE B	INDUSTRIALS	20.8	9.6	8.1	6.7	2.2	O
2522096	LOCKHEED MARTIN CORP	INDUSTRIALS	13.6	8.1	8.6	10.3	1.7	M
2648806	NORTHROP GRUMMAN CORP	INDUSTRIALS	12.7	7.6	7.7	6.8	1.7	O
2756174	RPM INTL	MATERIALS	21.4	12.6	19.1	11.4	1.7	
2073022	BALL CORP	MATERIALS	28.0	13.8	15.5	8.8	2.0	
2011602	AIR PRODUCTS & CHEMICALS	MATERIALS	28.9	10.2	12.3	5.3	2.8	O
2427986	CROWN HOLDINGS	MATERIALS	15.7	10.3	11.8	7.9	1.5	
2804211	SHERWIN-WILLIAMS CO	MATERIALS	27.7	9.6	11.1	16.6	2.9	
2328603	FMC CORP	MATERIALS	15.9	9.8	10.6	9.4	1.6	M
2066408	AVERY DENNISON CORP	MATERIALS	21.2	8.9	7.4	6.4	2.4	
B7FBFL2	AMERICAN TOWER CORP	REAL_ESTATE	41.7	15.9	13.1	17.3	2.6	
2379504	NVIDIA	TECHNOLOGY	48.2	21.5	32.1	33.7	2.2	O
2588184	MICRON TECHNOLOGY	TECHNOLOGY	19.3	14.2	32.1	13.5	1.4	O
B01Z7J1	MONOLITHIC POWER SYSTEMS	TECHNOLOGY	64.4	25.0	18.8	18.2	2.6	
2502247	LAM RESEARCH CORP	TECHNOLOGY	21.6	19.4	21.4	16.3	1.1	
B5B2106	FORTINET	TECHNOLOGY	38.3	19.2	18.9	30.4	2.0	
2342034	FISERV	TECHNOLOGY	21.8	17.5	16.7	17.2	1.2	
2698782	IPG PHOTONICS	TECHNOLOGY	50.0	21.4	11.6	14.4	2.3	O
2008154	ADOBE	TECHNOLOGY	44.2	16.7	15.8	18.3	2.7	O
2712013	GLOBAL PAYMENTS	TECHNOLOGY	25.1	16.6	14.9	24.5	1.5	
2961053	SKYWORKS SOLUTIONS	TECHNOLOGY	19.3	12.5	16.6	14.8	1.5	
2588173	MICROSOFT CORP	TECHNOLOGY	32.2	14.6	14.3	9.3	2.2	O
2302232	CADENCE DESIGN SYSTEMS	TECHNOLOGY	44.9	15.4	12.6	32.2	2.9	
2046552	APPLIED MATERIALS	TECHNOLOGY	17.7	16.0	11.9	11.0	1.1	
2592174	MICROCHIP TECHNOLOGY	TECHNOLOGY	21.0	12.3	12.3	14.2	1.7	
2046251	APPLE	TECHNOLOGY	32.4	12.6	11.9	14.0	2.6	M
BDV82B8	LEIDOS HOLDINGS	TECHNOLOGY	16.5	11.9	12.4	4.3	1.4	
2903958	TRIMBLE	TECHNOLOGY	29.3	15.0	8.9	11.2	2.0	O
2480138	KLA CORPORATION	TECHNOLOGY	20.9	11.9	11.1	10.7	1.8	
2507457	AKAMAI TECHNOLOGIES	TECHNOLOGY	19.3	10.4	10.1	12.4	1.9	
2661568	ORACLE CORP	TECHNOLOGY	14.4	10.9	9.5	2.8	1.3	O
2885409	TEXAS INSTRUMENTS	TECHNOLOGY	28.1	10.0	7.4	5.4	2.8	M
B23SN61	VMWARE A	TECHNOLOGY	21.3	8.8	7.9	16.9	2.4	O

Note: (1) The screen takes the companies in the two highest quintiles of our US Composite Growth screen and removes stocks that have a PEG ratio > 3x and more than a 10% premium of the average of current FY0FY3 EPS estimated growth and long-term forecast growth over 10-year IBES consensus 12-month forward Net Income growth. The PEG ratio that we use is 12-month forward PE/LTG. It also excludes companies that are rated Underperform by Bernstein analysts. Rebalanced on 31 December 2020. (2) O= Outperform rating, M= Market-Perform rating, U = Underperform rating. Further details of the research and important disclosures of the above covered securities are available on Bernstein Research website: www.bernsteinresearch.com. Other stocks are not covered by Bernstein.

Source: FactSet, MSCI, IBES, and Bernstein analysis

LET'S PLAY TWISTER, LET'S PLAY RISK

OVERVIEW

- How can investors achieve a high enough real return to plausibly save for retirement? Post Covid-19, we think this question has become a lot more urgent…and harder. We make the case that investors have little choice but to up their risk levels. We are fully aware of the irony — and indeed outright danger — of telling people to increase risk in the very month that US equities and bonds are both trading more expensively than ever before. Welcome to the future of investment!

- We show how the real return vs. risk of assets and factors has evolved in a very benign way recently, but now high asset prices and diminishing options for diversification are likely to erode this. Investors need to take more risk because: (1) the trade-off of return vs. risk for most assets seems likely to deteriorate, (2) equity volatility is likely to remain elevated, and (3) correlation between asset classes is likely increasing.

- We think it likely that equities need to be a core medium-term overweight for most investors though, yes, we know that we are saying this when the S&P is trading at an all-time high forward PE multiple and household equity allocation is already high. So there are clear near-term risks.

- Some investors have suggested maybe valuations don't matter anymore, but we think such a view is cavalier. Thus, a core question in this chapter is: which assets can deliver high returns but also diversify equity risk? The list is small.

- Around a core equity holding, we think a longer-term allocation should consist of Gold, Growth within equities, and Value only if one thinks real rates are rising (or possibly Value with an altered definition as we discuss). High-yielding equities, low volatility equities, and carry trades can also form part of this portfolio. Real assets are also needed in this mix, but with caveats. Regionally, an overweight US position would be the core, but we also see a strategic return-risk case for EM. Idiosyncratic alpha is a key part of this allocation, and a larger portion of overall returns than active alpha has been traditionally.

- Target date funds have only kept pace with their required glide path even with strong asset returns. Their structure is sound, but this analysis suggests the inputs may have to evolve.

- Investors have already been increasing risk, e.g., by allocating more to private assets and migrating down the quality spectrum in credit, even as credit quality has declined. We think this higher risk can be mitigated to some extent by a changed approach to asset allocation and also a more honest approach to time horizons and what that means in practice.

- We discuss what this means for asset managers and asset owners. But the bottom line is that post Covid-19, and with the valuations of financial assets at all-time highs, investors may simply have no choice but to increase their level of risk.

DETAILS

Investors are rightly caught up in trying to decipher the economic implications of the next stage of virus news and the policy response.[21] However, if one stands back, then the result of the virus, the lockdown, and the policy response to both is to magnify a problem that was already growing before the virus. It is this: what kind of trades or investment can one make that could plausibly deliver a high enough real return to fund retirement or other savings needs?

Through all the waves of market psychology, be it described as "FOMO" or "TINA," this is the underlying question. After all, why does anyone bother investing in anything? Achieving a positive real return at a given level of risk surely has to be the key goal. Despite the hit of the pandemic, achieving a positive real return in 2020 has still not been a problem, but in the aftermath of the pandemic, we think this will become a lot harder. This chapter is about some ways to possibly deal with this.

But the conclusion is that it is probably going to be unavoidable for investors to take a lot more risk both because of the available trade-off between return and risk at the individual asset class level, which is set to get worse, and also because of the worsening correlation between them.

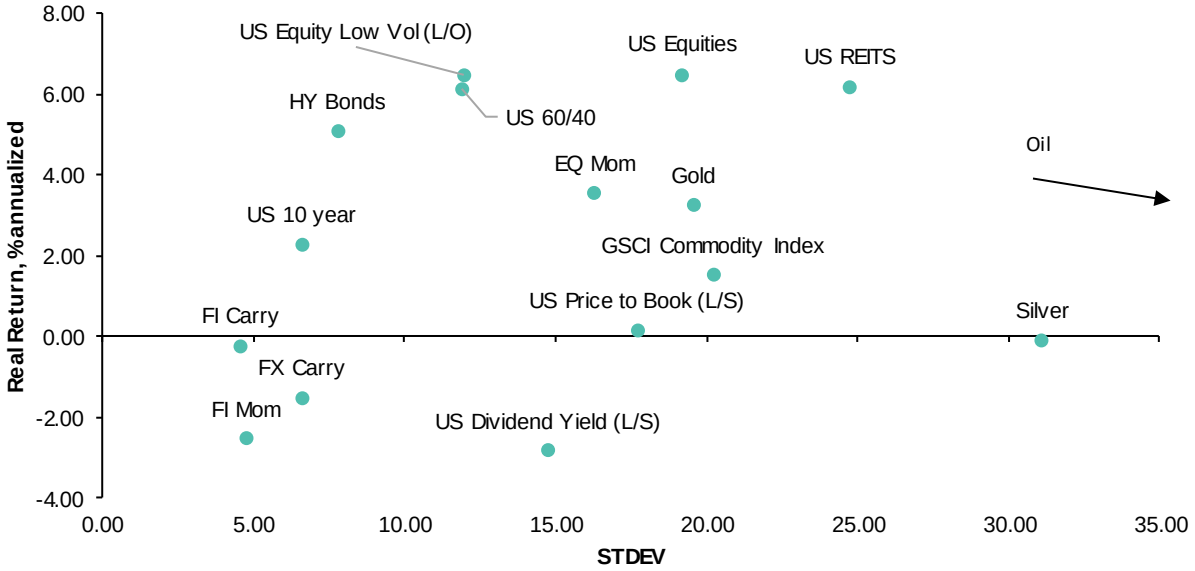
Exhibit 136[22] shows the real return and volatility for a range of assets over the very long run. It's familiar enough. As taught in finance courses, there is an "efficient frontier" that will happily justify an allocation to equities, bonds, credit, real estate, and carry that yields real returns well over 2% p.a., and ample diversification (especially a large negative correlation between stocks and bonds) allows total portfolio risk to be anchored at a low level.

The position of the 60:40 portfolio in return-risk space over this time is as good as it could possibly be — and that is before even taking into account the diversification benefits of the other asset classes. No wonder 60:40 continues to be seen as the default position for so many retirement options. This chapter is about how this will change and what to do about it.

[21] Much as I love REM anyway, I have to acknowledge Michael Kurtz for already nabbing this title for a strategy team note once before.

[22] This chapter involves a lot of charts with masses of points. I apologize for this up front! We usually like to keep things simple, and the message is, in fact, simple — that the evolving opportunity set for investors is becoming harder having been benign. With some studying we hope they are, in fact, a relatively clean way of showing this.

EXHIBIT 136: **Long-term real return-risk**

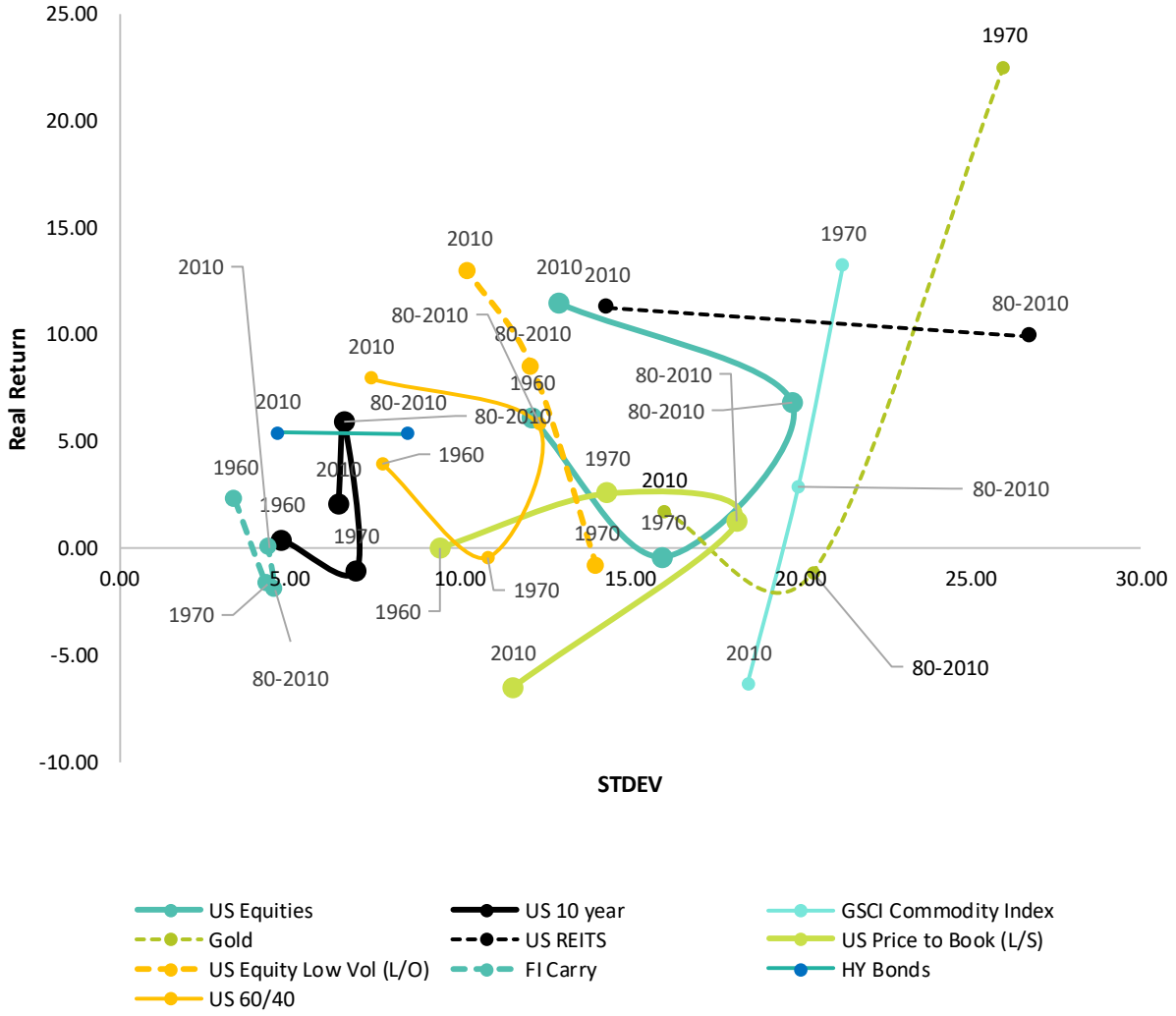


Note: US Equity, 10-year bond, price-to-book, dividend yield, equity momentum, FI Momentum, FI Carry, and US 60:40 returns and volatility are shown since mid-1927. Commodity index and Oil return and volatility history is since 1970, gold and silver histories are from 1969, US REITS are shown since 1972, FX carry since 1974, and high yield bonds since 1987.

Source: Datastream, AQR, Fama French database, FRED, and Bernstein analysis

Well, so much for the history of the prelapsarian decades before the current crisis. Exhibit 137 shows the same data, but split over time. Showing a dot for each decade would create a confusing galaxy of points; instead, we show the data for the last decade (labelled by its starting year 2010), the period 1980-2010 as one long period, the 1970s, and data for the 1960s where it is available. There has been a general tendency for the points to move up and to the left in recent times, underlining how supportive for asset owners' recent conditions have been compared to earlier times.

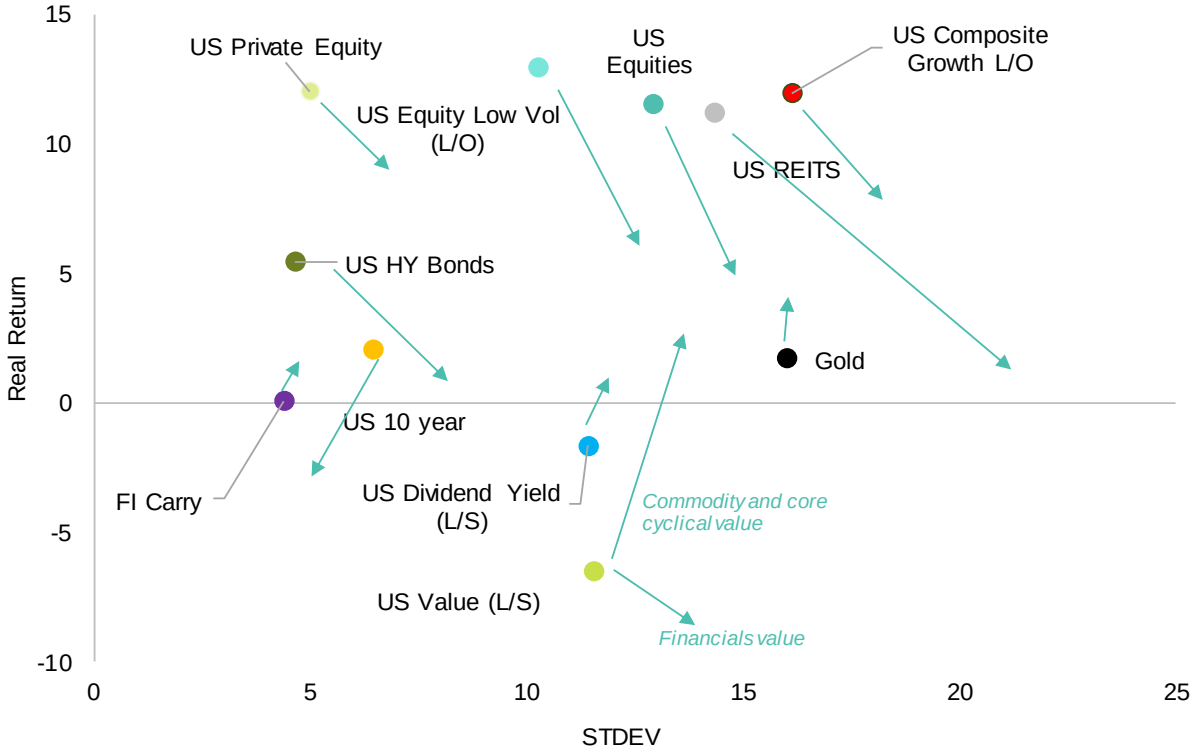
EXHIBIT 137: **Return vs. volatility for asset classes over time**



Source: Datastream, AQR, Ken French data library, FRED, GFD, and Bernstein analysis

We have added forecasts into Exhibit 138 to show how we think the return-risk path of these assets may evolve. We won't go into the basis for these forecasts in detail in this chapter. We have covered this in the strategic outlook in Global Quantitative Strategy: The Strategic Investment Outlook - Blame it on the Boogie. This is essentially just another way of showing pictorially the impact of the run-up in asset valuations (be it through the impact of baby boomers saving for retirement, globalization, or more shareholder-friendly policies) and the impact that declining inflation has had on the opportunities for diversification.

EXHIBIT 138: **Asset owners have to take on more risk; pension plans may be *forced* to add factors alongside asset classes; return-risk trade off to deteriorate**



Source: GFD, Datastream, AQR, Ken French data library, FRED, and Bernstein analysis

Essentially, this projects a view based on the likely path of returns and volatility, given the run-up in cross-asset valuations in recent years. We are assuming there is a tendency for inflation to rise in the medium term, driven by the policy response to Covid-19. One major unknown is whether this inflation can lead to an increase in real rates and a steepening of the curve, as it has in the past. As a result, we have diagrammatically suggested two paths for equity value. If real rates do rise, this could be the spark that Value investors have been waiting for and a long-short Value factor would be a key part of holdings. However, if real rates don't pick up, then Value could still languish. The other possibility is that the definition of Value many need to evolve, e.g., with a dramatically smaller allocation to Financials and a more selected exposure to "undervalued" companies as opposed to "cheap" companies.[23]

The potentially (medium-term) bullish news for equity investors in this is that the TINA argument might just be right (despite near-term risks). There may be little choice for the core of a portfolio to be a large equity allocation. We are fully aware of the irony of making this statement in July 2020 that the S&P has reached a new all-time high multiple of 26x 12-month forward earnings. Well, it's actually worse than this, as no one has a clue what those 12-month forward earnings will look like, not investors or policy makers, nor corporate management. Our recent work trying to model how possible paths out of

[23] See Portfolio Strategy: The Fed, the market the Value-Growth debate and inflation.

lockdown[24] could appear leaves us with the view that the S&P is currently most likely trading on 26x 2021 earnings, but the multiple could be a lot higher than that. It takes Herculean assumptions about a "V"-shaped recovery to get to a "normal" multiple.

Maybe valuations just don't matter? Some people have suggested this as an answer to our current predicament. If equities are the only asset class that is large enough and liquid enough and "democratized" enough to make up the required returns, then maybe an all-time high multiple doesn't matter?

However, we don't think such a view can be right. It sounds cavalier and, in fact, downright dangerous. It might be true that investors in the medium term have little choice but to hold more equities, but valuations do matter. Squaring this circle might not be about projected returns, but about risk. We can show that in periods when equity valuations start at high levels then volatility tends to be high (see Exhibit 139). We think equity volatility will remain elevated for the foreseeable future. In addition, our recent *tactical* work suggests that over short horizons, investors should seek downside protection in ways that do not necessitate paying a high premium (with volatility well bid, this might mean protection is harder via options and better via low volatility and income stocks). So, own equities but be prepared for higher volatility.

We think that risk levels need to increase for three related but distinct reasons:

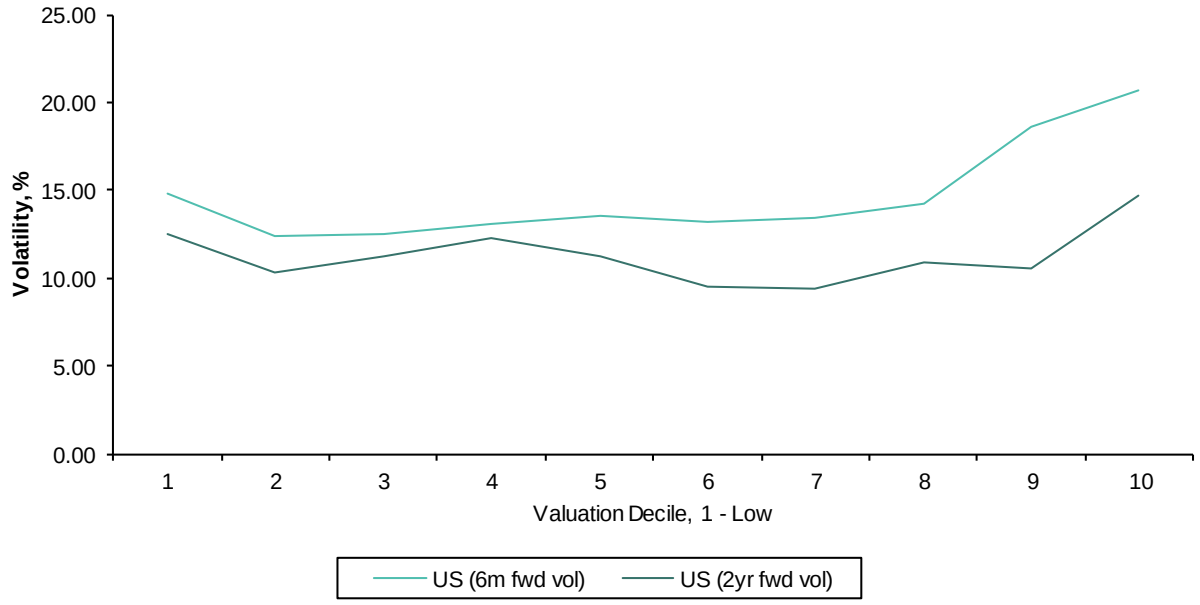
- It will simply be likely harder to achieve a given level of return without taking more risk in the return-risk trade-off.
- The volatility of equities seems set to be higher for some time.
- Fewer diversification opportunities. We covered this point in detail in Portfolio Strategy: Multi asset portfolios in the crisis and the outlook for diversification if inflation rises.

We can argue at length about whether the high current multiple of equities (an all-time record high on forward PE in fact) is outright bearish. There are reasons why a combination of policy and investor desperation for lack of alternatives could hold the market at a high level, but we do think that it means we should expect volatility to be higher in a sustained way.

Exhibit 139 shows that when valuation is high, it tends to be followed by a period of higher volatility. Specifically, we see that as the market moves into 9th and 10th deciles by valuation, both shorter-term (six-month forward) and longer-term (24-month forward) volatility tends to rise significantly. Currently, the US market is firmly in the most expensive decile both on 12-month forward PE and Shiller PE multiples, which implies scope for increased equity volatility in future.

[24] Portfolio Strategy & Global Healthcare: No one has a clue on 2021 market earnings - can the latest COVID healthcare research help?

EXHIBIT 139: **US market valuation and forward volatility**



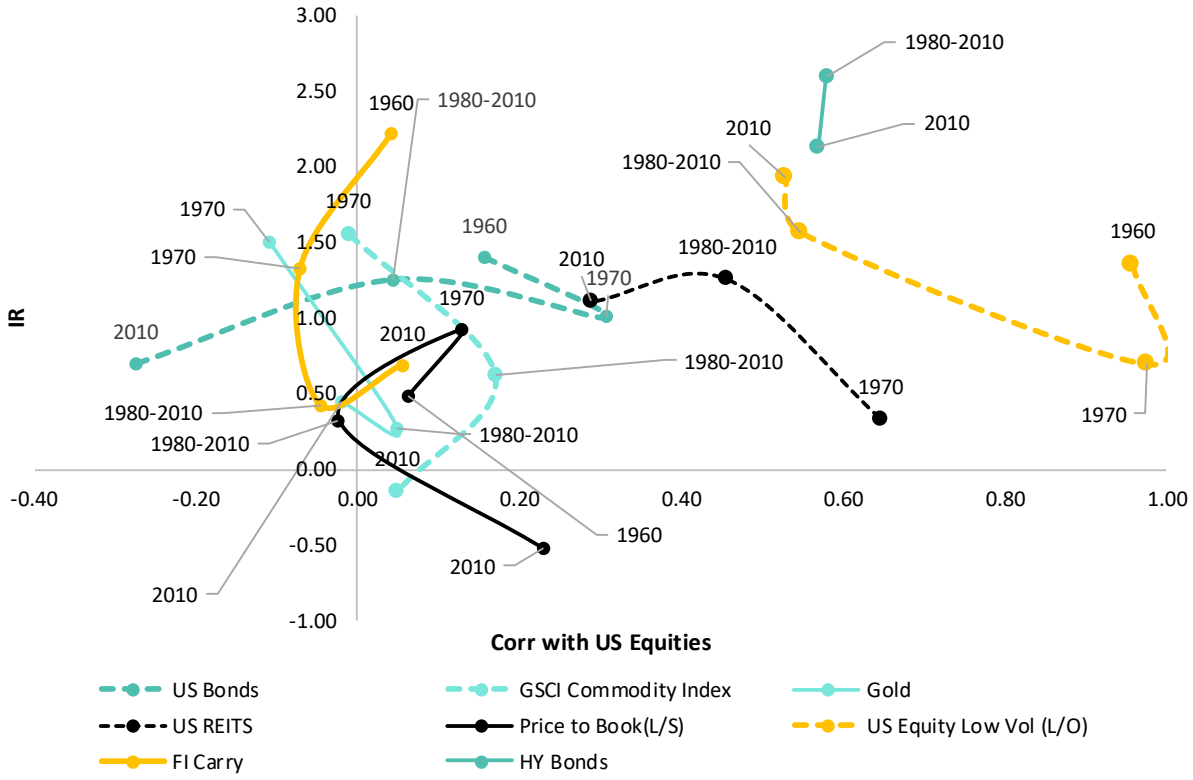
Note: The six-month forward volatility is plotted against 12-month forward PE market multiple divided into deciles (1 = lowest, 10 = highest) for 1990-2015. The two-year forward volatility is plotted against Shiller PE market multiple divided into deciles for 1950-2016.

Source: Robert Shiller's database, FactSet, IBES, and Bernstein analysis

So equities are likely to be the core holding over the medium term. But we also think that the negative correlation of stocks and bonds is likely to unwind. Thus, a key issue is how to achieve return and diversification of equity risk in particular. Exhibit 140 shows the information ratio (IR, defined as annualized return/annualized volatility) for a range of assets, with our projection of how these are likely to evolve. Here, we think the outlook for inflation is key; our base case is that the policy response to the pandemic is inflationary on a 1 year+ horizon and we incorporate that assumption here. A lower inflation outlook would suggest a slightly different path.

Government bonds have been progressively more dominant on an IR-vs.-diversification basis, while income, low volatility and value have become less useful. We think this is set to change. Over the next five years, we think the assets in the attractive top-right corner of the chart in Exhibit 140 look set to be equity income, low volatility, gold, and carry. Value could be there too, but only if real rates ultimately rise. Real estate would *in theory* be attractive if inflation rises and real rates remain low except: (a) the outlook for a sector exposed to retail, leisure, and central city office space looks horrible, and (b) its correlation with equities tends to rise with inflation. So we would not want to have any real estate exposure in such a portfolio.

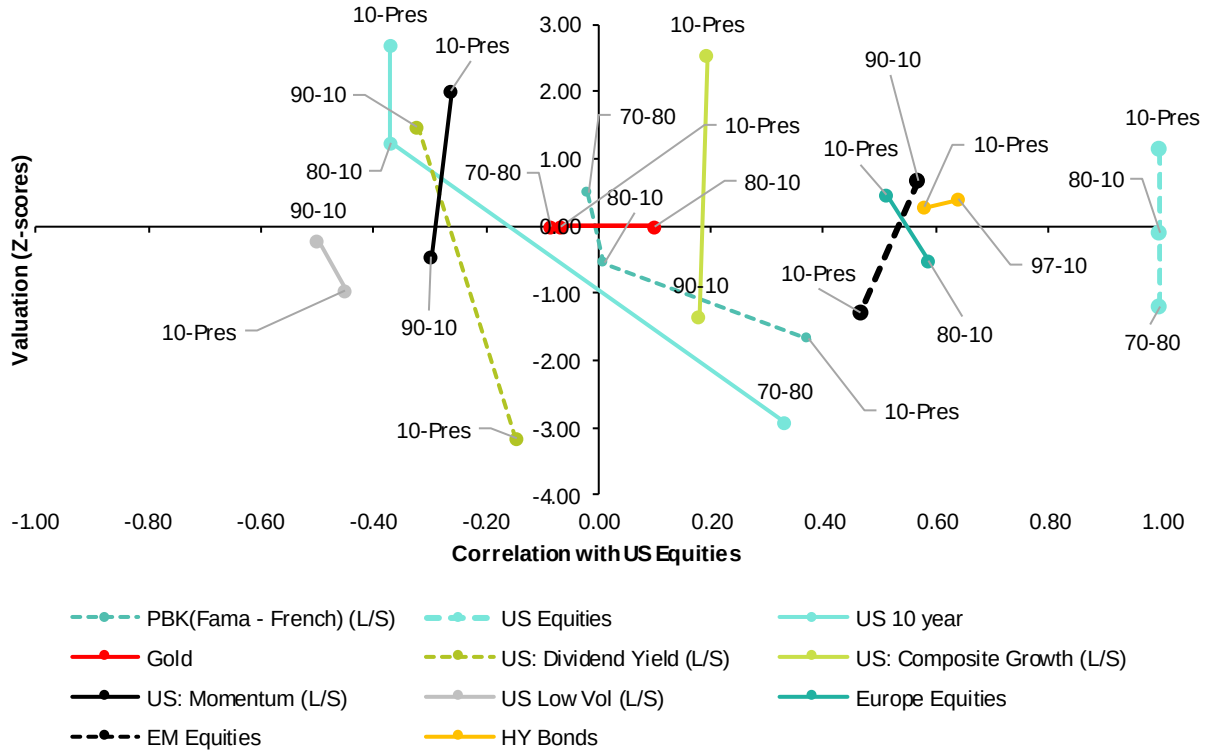
EXHIBIT 140: **Information ratio vs. correlation to US equities**



Source: Datastream, AQR, Ken French data library, FRED, and Bernstein analysis

Another take on this issue is the trade-off that exists now between valuation vs. potential for diversification (vs. equities) (see Exhibit 141). We think any such analysis would be incomplete unless one makes factors and traditional asset classes fungible. To do this, we express the valuation as a Z score compared to history. For Momentum, Dividend Yield, and Low Volatility we use the 12-month forward PE multiple, and the annual Price-to-Book multiple for the Fama-French Price-to-Book factor. For US 10-year and HY bonds, we use the bond yields, and for equity markets we use the Shiller PE multiples.

EXHIBIT 141: **Valuation (Z score) vs. correlation with US Equities**



Note: We express the valuation as a Z score compared to history. For Momentum, Dividend Yield, and Low Volatility we use the 12-month forward PE multiple, and the annual price-to-book multiple for the Fama-French price-to-book factor. For US 10-year and HY bonds, we use the bond yields and for equity markets we use the Shiller PE multiples. We then plot it against the correlation with US Equities over the same period. We show this for three periods — 1970-80, 1980-2010, and 2010 to Present.

Source: Datastream, GFD, FactSet, FRED, Ken French data library, and Bernstein analysis

The central challenge addressed in this chapter is that there are very few assets in the attractive bottom-left corner of Exhibit 140, i.e., cheap and offering diversification from equity risk.

We conclude that investors can't avoid taking more risk. Equities likely has to be a core holding and the volatility of equities is likely to remain elevated, given starting valuations. Moreover, the likely diversifiers for equity risk that also offer attractive IRs are equity income, equity low volatility, gold, and carry. With the exception of gold (which now has a lower realized volatility than Treasuries for the first time in a decade), these strategies are likely to be higher risk than holding high-grade government bonds. Why would investors who had traditionally sought diversification in lower-risk assets suddenly be willing to buy more equities? Well, first they probably have no choice if they need to earn a given level of return, but second, they have been doing this already! Allocations within fixed income portfolios have migrated to high yield and EM debt. We would argue that is even worse than it looks on paper, as the migration to lower-quality credits in recent years has occurred in conjunction with the average quality of debt declining at the same time.

The other moving part in all this has been alts, particularly private equity. We think allocations to alts will continue to increase, but there are some caveats or at least changes

to rules of the road that may be needed. Some would claim that an increased allocation to private equity is the only way out. There are various problems with this:

- We are suspicious of the idea that private equity can out-earn public equity over the cycle, once fees and the ability to take leverage are taken into account.[25]

- Proponents for private equity would cite the "alpha" from bringing about corporate change. Fine, but that has exactly the same status as idiosyncratic alpha earned in active public equities, so we think that it is a question of achieving idiosyncratic alpha rather than anything special about private equity.

- Dry powder is at an all-time high. We are simply asking more from private equity than we ever have before. We discussed this in detail in The Next 10 Years of Investing.

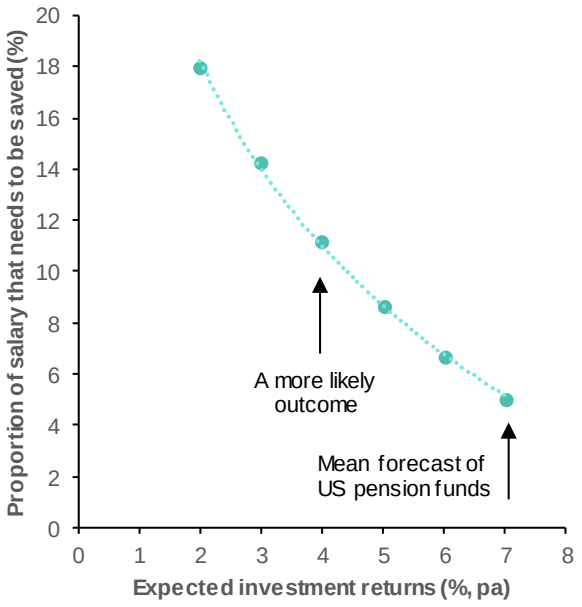
What returns are needed?

In Exhibit 142, we use a simple lifetime savings model to show that if expected returns on investments fall from the 7% rate commonly used today (and the average assumed return of US pension funds) to 4%, then the proportion of current salary that needs to be saved for an average saver rises from 4% of their annual income to 11% of their annual income.

Exhibit 143 shows that since the GFC, US households have increased their savings rates. The pandemic has caused an "off the chart" spike in saving, but that presumably is a temporary effect. If low investment returns become the norm, then the savings rate would have to rise to levels (until the pandemic) last seen in the 1960s, and the savings rate would likely have to stay at that level. That would have, in turn, a painful impact on the amount of income left over that was available to be used for consumption. And, of course, this is for people who are lucky enough to be able to save each month. If the level of unemployment proves sticky and does not fall back to the 2019 level, then an alternative will have to be found for many households.

[25] For more details see: "An Inconvenient Fact: Private Equity Returns & The Billionaire Factory", Ludovic Phalippou, University of Oxford, Said Business School, 2020.

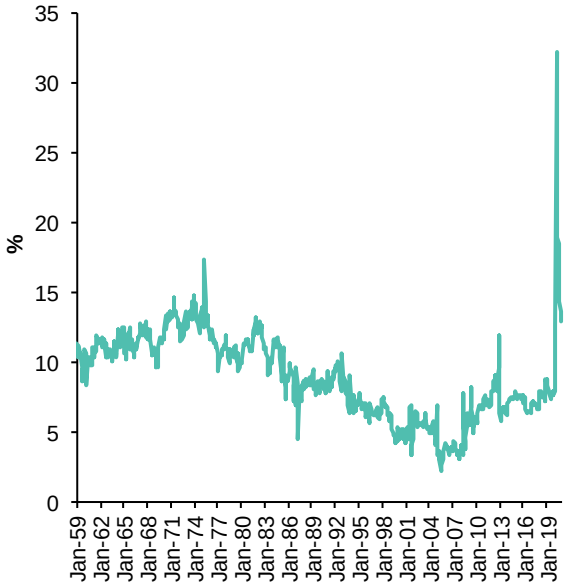
EXHIBIT 142: **Amount needed to be saved and return on investment portfolio**



Note: Chart shows the relationship between the proportion of salary that needs to be saved each year and expected investment returns. To quantify the impact of asset class returns, we construct a simple lifetime savings model. We assume someone starts work aged 20 earning $25K p.a. and experiences salary growth of 2% p.a. and retires aged 65. On retirement, we assume they purchase an annuity that pays out $35K every year and that they die aged 90. We assume they pay into a savings product each year and this allows a simple analysis of the scale of the change required to the proportion of salary that is saved as we vary the assumed investment return.

Source: Bernstein analysis

EXHIBIT 143: **US personal savings rate**

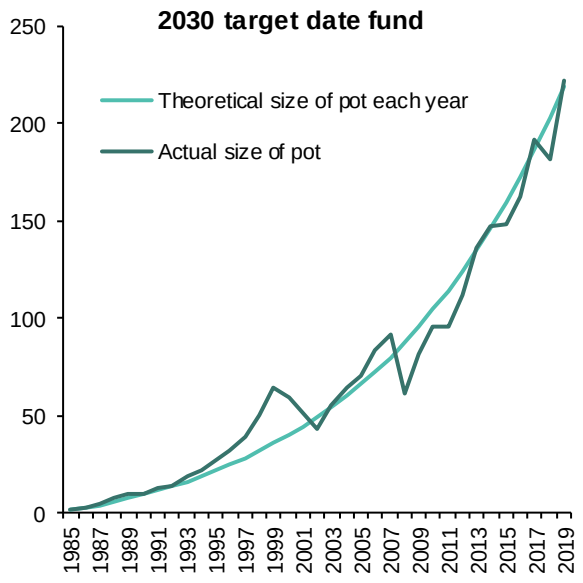


Source: FRED and Bernstein analysis

Is there some leeway in this need to generate returns? After all, multiple years of strong asset price returns might have built in enough of a reserve to weather a lower-return future for a few years. Exhibit 144 and Exhibit 145 show the required glide path for the size of a retirement pot assuming an agent who saves 5% of their salary each year and invests it in a retirement vehicle that on average achieves 7% p.a. We then also take a sample of 2030 and 2040 target date funds and ask what the path would be if they were used for these savings. The conclusion is that the strong returns of recent years have only managed to keep track with the required glide path. In other words, the strong returns of recent years have just been assumed to be normal and have been baked into the assumptions about how much needs to be saved.

There is nothing wrong with the target date structure. We think it more likely that it is the inputs that have to change. It was sensible for that to historically largely rely on allocating between (mainly passive) equities and bonds, and to tilt that over time in a pre-programmed way. We think that the range of inputs may now need to be cast much wider.

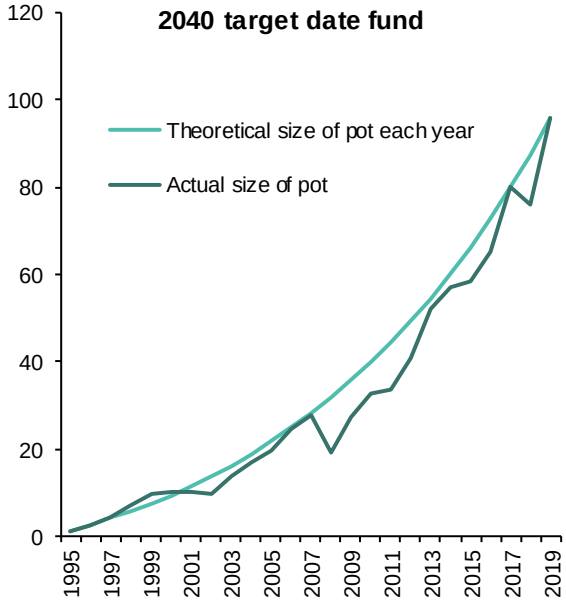
EXHIBIT 144: **Actual and theoretical pension pot for 2030 retirement cohort**



Note: The chart shows the theoretical size of the savings pot for a person who saves 5% of their salary every year and on average achieves 7% return on investment vs. the actual achieved return by the 2030 Target Date fund cohort.

Source: eVestment and Bernstein analysis

EXHIBIT 145: **Actual and theoretical pension pot for 2040 retirement cohort**



Note: The chart shows the theoretical size of the savings pot for a person who saves 5% of their salary every year and on average achieves 7% return on investment vs. the actual achieved return by the 2040 Target Date fund cohort.

Source: eVestment and Bernstein analysis

So, what's the conclusion?

In order to achieve a given level of investment return, risk is going to have to go up as it seems unlikely that the return-risk trade-off of some of the key sources of return can remain at such favorable levels. The volatility of equities seems set to remain high and total portfolio risk is likely to go up if diversification is harder to achieve.

We get the irony, and frankly the outright danger, of proclaiming that investors need to take more risk at the same time that most assets are trading expensively, and US equities and bonds have never been more expensive than they are now. But frankly, there is little choice. However, this challenge is likely to force investors to think more in other dimensions, e.g., to take full advantage of time horizons. If assets are used for saving for retirement, then maybe daily liquidity isn't so important? We think it will also force more investors to think about the structure of strategic asset allocation and that this will be the impetus to shake up thinking on the topic in a radical way.

For asset owners, we think this should prompt a shift away from seeing asset allocation as a question of how to weight asset classes and instead focus more on what combination of return stream delivers the highest post-fee return per unit risk. We argue that the current

focus of allocation to equities, bonds, and alts is unlikely to achieve this. Instead, there is beta, idiosyncratic alpha, and cash/gold.[26]

Specifically, in terms of allocation, it suggests a structure of the form:

- Large overweight in equities.
- Gold, also heavily overweight.
- Within equities, buy Growth assets.
- Buy Value only if one thinks that an increase in inflation will lead to an increase in real rates and a steepening of the curve. Without that, Value may be confined to tactical rallies. Or possibly the definition of Value can be adjusted, e.g., stripping it of Financials and very specifically buying undervalued Consumer, Industrials, and Commodity Value names.
- High-grade bonds are not a good diversifier of equity risk, reallocate instead to equity low volatility, equity income, and fixed income carry.
- In theory, one could buy real estate for income, but actually we would stay well away. The aftermath of this crisis is likely to be horrible for an extended period for that sector, and anyway the correlation of real estate and equities tends to rise with inflation.
- Infrastructure and real assets also become a core holding. However, a way needs to be found to achieve this exposure without incurring 2/20 fees. Also, merely being a real or illiquid asset does not justify an active fee. Some of those exposures can be achieved passively.
- Our Alphalytics research Alphalytics: Tearing up the rules on active management has shown that idiosyncratic alpha — as opposed to traditional alpha — is persistent. This, therefore, becomes a key part of achieving overall return objectives.

For asset managers, this implies there is an opportunity for multi-asset businesses to craft new products to fit this changed set of circumstances, e.g., blending asset classes, and factors and idiosyncratic alpha. As realization of the changed set of investment circumstances spreads, there will likely be growing demand for such product from both institutional and retail investors. For example, bringing real assets and private assets into a more democratized format that allows a greater number of investors to allocate to the "beta" element of their returns, but without high fees, or changing the make-up of target date structures to reflect the different return-risk trade-off would likely be growth areas in this world.

[26] As we laid out in depth in A New Paradigm for Investing.

MULTI-ASSET PORTFOLIOS IN THE CRISIS AND THE OUTLOOK FOR DIVERSIFICATION IF INFLATION RISES

OVERVIEW

- How has the availability of income and diversification changed over the course of the current crisis? If the policy response to Covid-19 ends up being inflationary, what are the prospects for returns and diversification?
- If the policy response to Covid-19 ends up being moderately inflationary, we think equities should be a core holding. But how are the returns of other holdings likely to fare? We show that if inflation rises then the equity Value factor, FX carry, real estate, commodities, and gold tend to do well, as might be expected…
- …but real estate, high yield, and commodities become unattractive from the point of view of ability to offer diversification. On that basis, equity income, equity low volatility, carry, and gold are more valuable. Moreover, we think the outlook for real estate and high yield are unattractive from a strategic point of view anyway.
- If we overlay this with current valuations, then it makes a strategic case for holding Income/Value strategies within equities along with commodity-related equities.
- We analyze how the components of our strategic cross-asset portfolio and fixed income replacement portfolios have fared in the pandemic. They outperformed 60:40 and hedge fund aggregates in the risk-off months. However, even with portfolios constructed to have such a diversified set of strategies and assets, it is hard to avoid drawdowns in such large risk-off months. This shows the importance of adding sources of persistent (idiosyncratic) alpha to portfolios.
- The bottom line is that the impact of the pandemic has made the hunt for return vs. diversification, in a strategic sense, even harder. Overall, this underlines the importance of considering strategies/factors and not just asset classes in asset allocation, especially if one aligns the outlook for returns with the ability to achieve diversification and the opportunities presented by current valuations.

DETAILS

The current crisis brings a host of tactical and strategic investment challenges: how have strategies that are designed to yield a positive real return fared? What is the prognosis for achieving diversification in the current environment? If the policy response to the crisis is inflationary, what strategic allocations should be made? If high-grade fixed-income assets are less able to achieve either their traditional return or diversification objectives, how are the possible alternatives faring?

A theme in our research has been that the true benchmark for most investments should be a spread over inflation and that it is going to become harder to achieve positive real returns and diversification in coming years. Our recent *Blackbook* A New Paradigm for Investing laid out a framework for thinking about how to respond to this. In our research Fund Management Strategy: An urgent need to replace fixed income, we suggested a portfolio approach was needed for replacing high-grade fixed-income assets and we have also set out suggestions for strategic cross-asset portfolios that span asset classes, factors, and alpha strategies in Global Quantitative Strategy: 6 strategic trades and 5 tactical trades.

In this chapter we look at:

- How different types of multi-asset strategies have performed so far in the Covid-19 crisis.
- How such strategies are set up if inflation becomes an issue during 2021 and beyond.
- What the current outlook for achieving return and diversification is.

Exhibit 146 shows the return in each of the four highly volatile months, February 2020 to May 2020, of a selection of strategies that form elements either of our strategic cross-asset portfolio or else our fixed income replacement strategy.

Overall, our cross-asset portfolio and fixed income replacement portfolio did much better than 60:40 and hedge fund aggregates in the risk-off months of February and March 2020, though they underperformed simply holding 10-year bonds. They also materially underperformed a simple, passive, long-equity position in the rebound. It has been hard to escape from the initial downward drag on risk assets and the widely dispersed rebound. Components of such strategies such as bond value, FX carry, and gold did manage to act as diversifiers from equity risk as the market fell in February-March 2020, but as we show in Exhibit 147 and Exhibit 148, even these portfolios that try to get returns from a very broad variety of sources have seen a much higher proportion of their constituent trades posting positive performance.

The role for skilled active: We note that these portfolios are constructed almost entirely from asset class and factor betas.[27] This can show the importance of including active strategies as part of a full portfolio — the proviso, of course, being that there has to be confidence in the persistence of that alpha. The recent *Alphalytics* research (Comment: The pandemic and the power of concentration) showed that the subset of managers who showed prior skill in terms of generating idiosyncratic returns and, crucially, were also very concentrated, managed to show strong performance in this period. We have shown that idiosyncratic returns are generally more "sticky" than normal alpha, making them an appropriate part of such a portfolio.

[27] The one exception is the global quant equity alpha model.

EXHIBIT 146: **Recent performance of selected strategies**

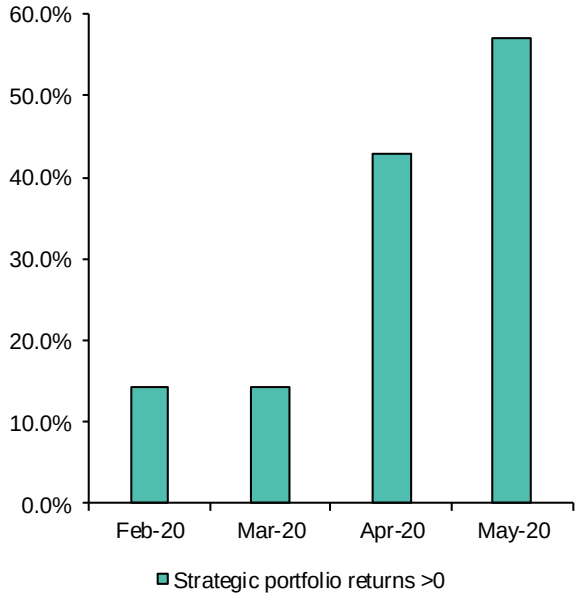
	FI Replacement Portfolio								
	US Stable Yield Total Return	US REITS Total Return	Europe Infrastructure Basket Index (USD)	US TIPS 10Y	FX Carry (Top 3 / Bottom 3)	FX Momentum (Top 3 / Bottom 3)	Bond Carry (Top 3 / Bottom 3)	Gold	Municipal Bonds
29/02/2020	-7.19	-6.87	-7.80	1.42	0.69	-0.27	-1.48	0.00	1.29
31/03/2020	-10.20	-17.83	-6.68	-0.31	1.73	0.26	-3.06	1.60	-3.63
30/04/2020	11.96	8.85	4.50	2.40	0.69	0.16	-1.61	5.75	-1.26
31/05/2020	3.60	2.35	4.09	0.47	0.37	0.09	2.98	1.57	3.18

	Strategic Quant Portfolio						
	Global Alpha Model	Residual Value	Bond Value	Bond Momentum	German Power Price Delivery	FCF Yield	MSCI World
29/02/2020	-0.69	-1.72	1.09	-2.35	-1.37	-2.97	-8.41
31/03/2020	-4.32	-2.72	7.19	-5.29	-10.03	-3.27	-13.17
30/04/2020	0.20	-3.77	-1.29	-2.11	3.08	-1.56	10.98
31/05/2020	-0.60	-4.51	2.02	1.43	1.99	-3.42	4.90

	FI Replacement Portfolio	Strategic Quant Portfolio	US Equities	US 10 year Bonds	US 60/40	Hedge Fund Composite
29/02/2020	-1.07	-1.58	-8.23	3.81	-3.42	-2.21
31/03/2020	-2.80	-1.91	-12.35	6.11	-4.97	-8.42
30/04/2020	2.01	-0.60	12.82	0.21	7.78	4.79
31/05/2020	1.69	0.23	4.76	-0.013	2.85	-

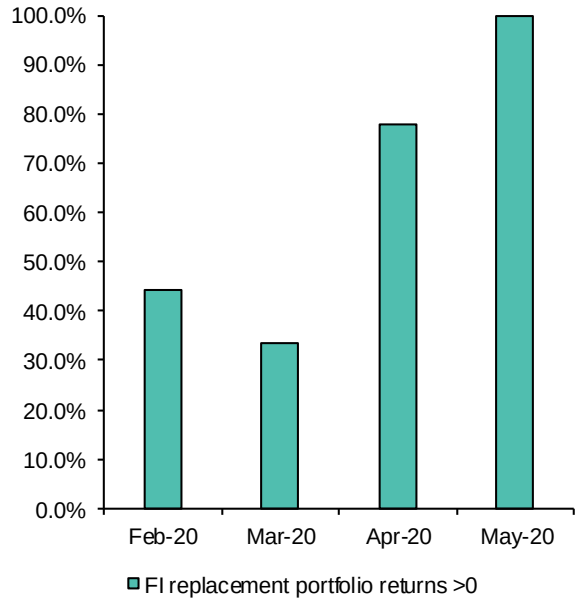
Source: FactSet, MSCI, Datastream, HFRX, Bloomberg, and Bernstein analysis

EXHIBIT 147: **Proportion of strategies yielding positive returns by month – Strategic portfolio**



Source: Datastream, FactSet, Bloomberg, and Bernstein analysis

EXHIBIT 148: **Proportion of strategies yielding positive returns by month – FI replacement portfolio**



Source: Datastream, FactSet, Bloomberg, and Bernstein analysis

Inflation hedging properties and what it means for portfolios

We think there is a strong likelihood that the policy response to the lockdown is inflationary.[28] So, once we get over the near-term deflationary shock we currently face, a strategic allocation may require outright inflation protection.

Exhibit 149 shows the average return of a range of assets/factors since 1970, conditioned on the level of inflation in a given year (the factor strategies are shown here long-short). The key conclusions from this are that equities are one of the most effective assets to hold as inflation rises, at least until inflation reaches a 5% level. We next show that a similar message for equities comes from looking at valuation conditioned on inflation.

Within equities, Value factors do well as inflation rises, and within Value it is the more "mean reversion" type of Value factor such as price-to-book that is key and not the more income-type factors such as dividend yield. There is, of course, a huge ongoing debate about whether Value "is dead." Our view is that yes, it faces some structural problems such as the switch to investment being in intangible assets, potentially making metrics such as price-to-book and PE less meaningful, and whether QE has ended the usual process of mean-reversion (we discussed this in Global Quantitative Strategy: Has Value met its Waterloo?). But over and above this, part of the pressure on Value factors in recent years has been persistent negative surprise of inflation prints.

Within fixed income, it is FX carry strategies that most clearly do progressively better as inflation rises. On average, these strategies have been loss-making at inflation rates less than 1%, but have been significantly more profitable at inflation rates over 2%. Commodities and gold also score well on this basis, both outright commodity holdings and also the equity of the commodity sectors. We covered the case for gold in more detail in Portfolio Strategy / Global Metals & Mining: Scrap 60/40 and go mining for gold.

Real assets are also good inflation hedges in theory. We show next that real estate indices are positively exposed to inflation, and more importantly from an investability perspective so are REITS. However, this time we would be much more cautious on near-term exposure to real estate, given the scale of the current recession and the exposure of the sector to the structural problems of the retail and leisure sectors. We also describe why real estate may be unattractive from a diversification point of view. One very important real asset — infrastructure — is missing from this. In recent work, we have used a basket of infrastructure-exposed Utilities as a proxy for such assets (A New Paradigm for Investing). However, we do not have long-enough data for such assets to capture a wide-enough range of inflation regimes. Therefore, we are just going to assert that infrastructure assets can act as an inflation hedge, given in many cases their ability to extract an income stream set in real terms.

[28] Portfolio Strategy: Tilting the balance from shareholders to governments? The strategic outlook post Covid-19

EXHIBIT 149: **Factor and asset performance in different inflation regimes**

Since 1970	US Equities Total Return, yoy	US Bonds Total Return, yoy	Equity: PBK, yoy	Equity: Dividend Yield, yoy	Equity: Momentum, yoy	Equity: Variance, yoy	Equity: Residual Variance, yoy	FI Momentum, yoy	FI Carry, yoy	FX Carry, yoy
<-1	-23.12	7.63	-2.53	-4.97	-46.11	-8.43	-10.79	-4.72	1.46	-7.10
-1 to 0	-8.75	10.63	-6.46	-3.17	-2.95	25.66	23.77	4.48	2.64	-5.31
0 to 1	2.54	4.39	-9.18	-0.57	12.61	16.44	13.97	0.90	1.85	-5.43
1 to 2	14.68	8.98	0.96	1.66	5.68	5.72	7.15	1.12	3.02	1.90
2 to 3	17.94	5.97	4.32	-0.59	4.27	-2.01	-1.61	-0.25	0.54	4.63
3 to 4	12.86	11.19	3.75	2.44	11.51	4.92	6.30	0.31	2.04	3.59
4 to 5	10.98	8.75	4.66	1.71	5.89	10.69	12.53	0.12	0.41	4.98
>5	5.19	5.29	8.51	4.45	12.86	6.60	6.41	0.31	4.66	2.01

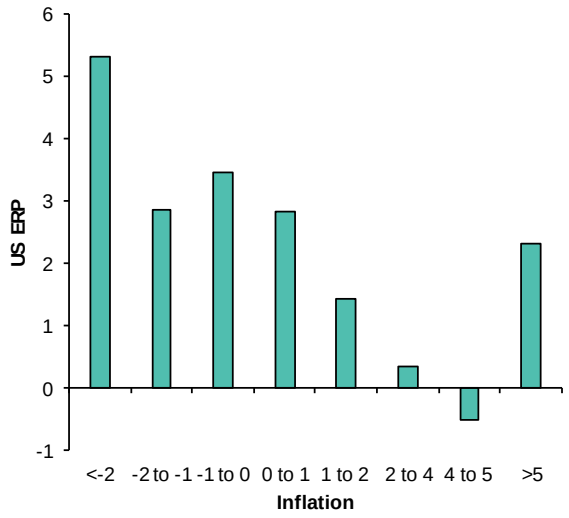
Since 1970	US REITS, yoy	Real Estate Index, yoy	GSCI Commodity Index, yoy	Brent Oil, yoy	Gold, yoy	US Energy relative, yoy	US Metals & Mining relative, yoy	Silver, yoy	High Yield Bonds, yoy
<-1	-37.47	-9.25	-53.16	-42.59	7.86	-11.56	-15.63	-1.98	-0.17
-1 to 0	-11.10	-4.34	-42.22	-42.91	2.40	-8.41	-19.51	-11.55	-4.72
0 to 1	3.67	3.95	-34.74	-39.21	-5.11	-20.19	-27.82	-13.80	-2.31
1 to 2	17.71	5.37	-8.32	-11.06	4.35	-8.73	-9.11	2.75	8.66
2 to 3	22.50	4.26	9.31	15.37	7.00	-1.72	6.03	11.04	12.85
3 to 4	21.90	4.68	18.98	19.68	10.58	4.54	1.41	11.78	8.82
4 to 5	4.20	4.04	21.51	17.57	5.74	6.69	6.73	-2.32	5.92
>5	9.41	8.00	20.10	39.07	21.39	5.70	1.57	22.90	1.48

Note: Returns for Energy, REITS, and Metals & Mining are from 1974, returns for FX Carry are from 1975, returns for GSCI Commodity index and Oil are from 1971, and High Yield Bond returns are from 1987.
Equity PBK, Dividend Yield, Momentum, Variance, Residual Variance and FI Momentum, FI Carry, and FX Carry factor strategy returns are long-short.
Energy and Metals & Mining sector returns are relative to broader US equity market.
Real Estate Index returns are from Robert Shiller's Real Estate return database.

Source: Ken French data library, AQR, Robert Shiller's database, FactSet, FRED, Datastream, and Bernstein analysis

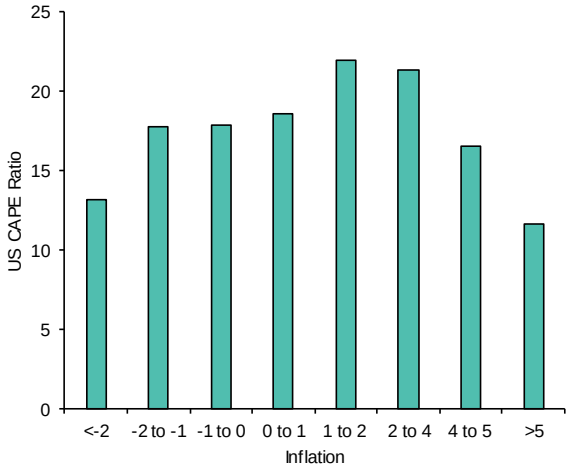
We noted in previous research that equity market multiples have been the highest during periods of moderate inflation close to the 2% central bank policy target (see Exhibit 151). Similarly, as shown in Exhibit 150, when inflation moved close to zero or deflationary territory or accelerated beyond 5%, it had historically been accompanied by a sharp rise in equity risk premium. So if the medium-term outlook is one of rising inflation — but not getting to the 5% level — this would imply equities need to be a core part of allocation.

EXHIBIT 150: **Equity risk premium and inflation regimes**



Source: Datastream and Bernstein analysis

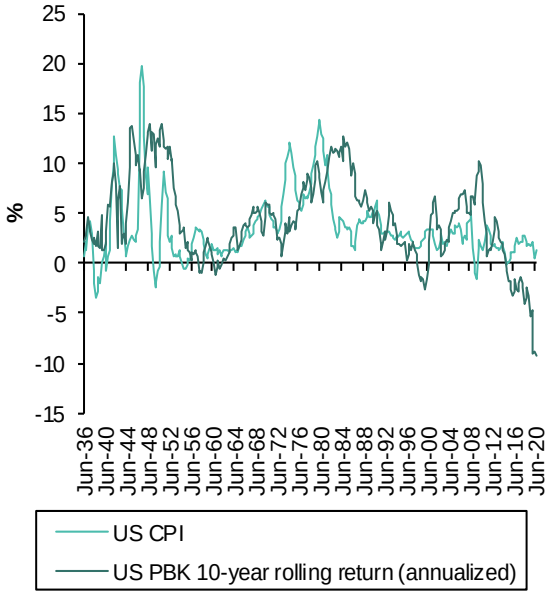
EXHIBIT 151: **Inflation regimes and market multiple**



Source: Robert Shiller's database, Datastream, and Bernstein analysis

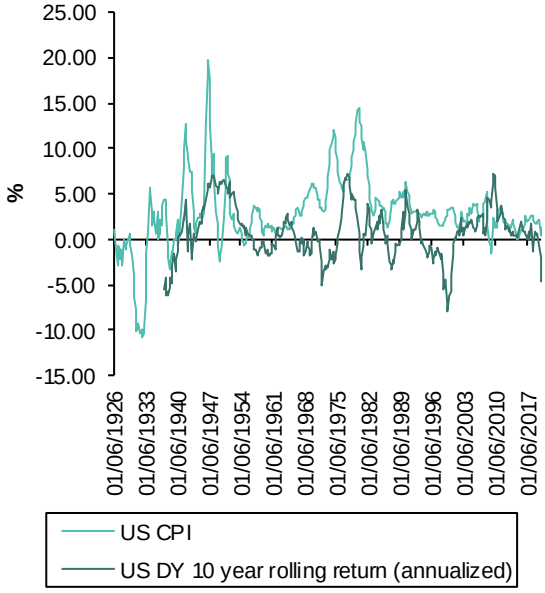
Exhibit 152 and Exhibit 153 show the link between equity value and income strategies with inflation. The link is stronger between "deep value" and more cyclical metrics such as price-to-book, but it also holds for income strategies. We have discussed in recent research (Global Quantitative Strategy: Has Value met its Waterloo?) how there are multiple structural challenges for Value and these remain in place, but in addition one problem at least has been persistent negative surprises on inflation prints. Therefore, an uptick in inflation would be expected to support Value. We also show that FX carry seems to show a positive link to inflation, as suggested by Exhibit 154.

EXHIBIT 152: **US price-to-book returns vs. inflation**



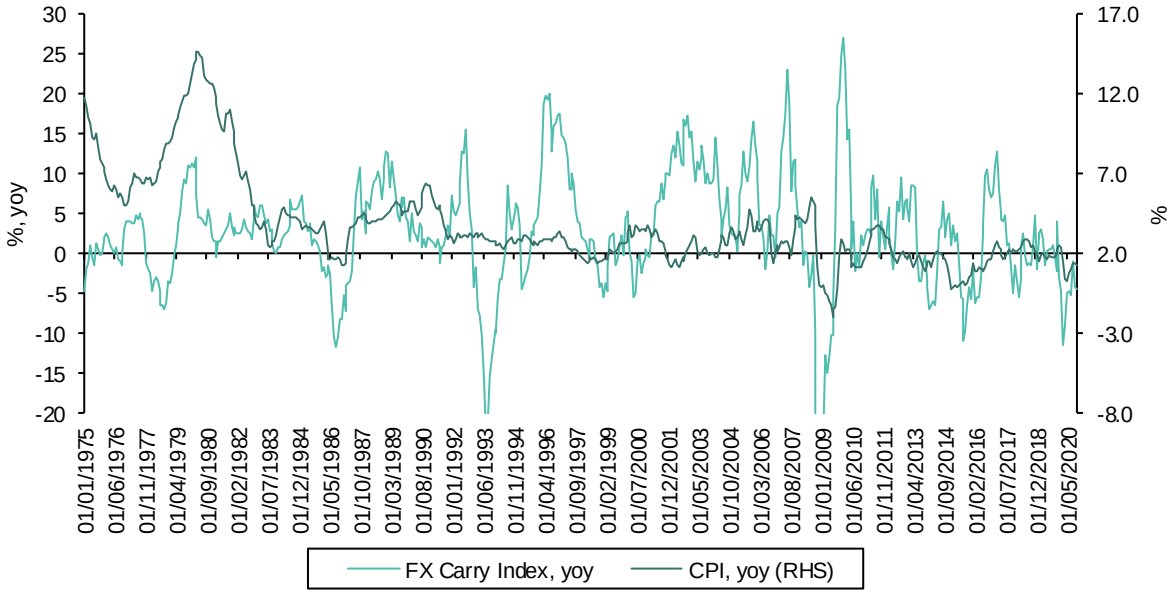
Source: Ken French data library, Datastream, and Bernstein analysis

EXHIBIT 153: **US Dividend Yield factor returns vs. inflation**



Source: Ken French data library, Datastream, and Bernstein analysis

EXHIBIT 154: **FX Carry index and inflation**



Source: AQR, Datastream, and Bernstein analysis

What we are interested in is the interaction of expected returns as inflation rises with the properties of assets as a diversifier. Here we are assuming that inflation can move higher but does not spiral out of control. In such an environment, equities are the core holding, but

what should the overall portfolio look like? Exhibit 155 shows the correlation of assets and strategies with equities predicated on inflation levels.

The first column shows that bonds become a less useful diversifier as inflation rises, hence the need to find an alternative. The most striking result to us is that Value, Income, and Low Volatility strategies within the equity market become better diversifiers from a passive long-only equity position as inflation rises. The importance of Value as a diversifier does not seem to be constrained to equities, as Carry strategies with fixed income markets (between short- and long-dated debt) and FX carry strategies (between the debt of countries with differing levels of yields) also tend to have lower correlation with equities at higher levels of inflation.

Gold retains a low correlation with equities as inflation rises, but investable real estate in the form of REITS and also high-yield bonds have a correlation with equities that increases with inflation and, hence, become less attractive.

EXHIBIT 155: **Correlation of assets to equities as inflation rises**

Since 1970	US 10y Bonds	Equity: Price to Book	Equity: Dividend Yield	Equity: Momentum	Equity: Variance	Equity: Residual Variance	FI Mom	FI Carry	FX Carry
<1	-0.09	0.19	-0.18	-0.27	-0.21	-0.24	0.09	0.26	0.27
1-2	-0.22	0.26	-0.36	-0.24	-0.32	-0.30	0.15	0.05	0.33
2-3	0.00	0.10	-0.13	-0.09	-0.30	-0.31	0.06	-0.07	0.15
3-4	0.00	-0.02	-0.41	0.04	-0.51	-0.51	0.12	-0.06	0.12
4-5	0.24	-0.10	-0.40	-0.05	-0.50	-0.48	0.00	-0.12	-0.04
>5	0.31	-0.05	-0.50	0.05	-0.63	-0.58	-0.22	-0.16	0.03

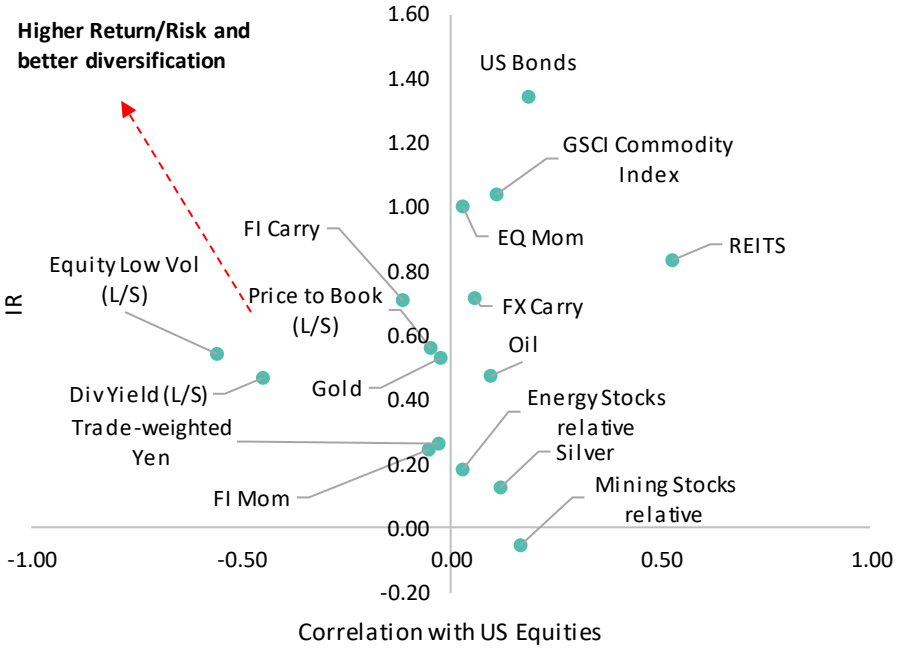
Since 1970	GSCI Commodity Index	Oil	Gold	Silver	Energy Stocks relative	Mining Stocks relative	REITS	Real Estate Index	High Yield Bonds
<1	0.15	0.17	0.13	0.17	-0.16	0.27	0.32	0.22	0.51
1-2	0.13	0.21	-0.11	-0.04	0.02	0.11	0.39	-0.03	0.56
2-3	0.07	0.08	0.05	0.12	-0.11	0.02	0.33	-0.08	0.57
3-4	0.20	0.23	0.03	0.22	0.12	0.18	0.44	-0.10	0.64
4-5	-0.04	-0.02	-0.14	0.16	-0.09	0.17	0.49	0.02	0.51
>5	0.09	0.03	-0.02	0.01	-0.01	0.15	0.62	0.00	0.62

Note: Returns for Energy, REITS, and Metals & Mining are from 1974, returns for FX Carry are from 1975, returns for GSCI Commodity index and Oil are from 1971, and High Yield Bond returns are from 1987.
Equity PBK, Dividend Yield, Momentum, Variance, Residual Variance and FI Momentum, FI Carry, and FX Carry factor strategy returns are long-short.
Energy and Metals & Mining sector returns are relative to broader US equity market.
Real Estate Index returns are from Robert Shiller's Real Estate return database.

Source: Ken French data library, AQR, Robert Shiller's database, FactSet, FRED, Datastream, and Bernstein analysis

In Exhibit 156, we look across all periods where inflation was greater than 3%. On the vertical axis, we plot the return-risk (information ratio) of a given holding and on the horizontal axis we plot the correlation of the asset with equities. The attractive assets are in the top left as these have a higher return-risk and better diversification from a passive long-equity position. We find that the assets closest to this are equity low volatility, equity income, gold, and fixed income carry.

EXHIBIT 156: **Return-risk vs. correlation with equities when inflation >3%**



Note: Correlation is calculated as average 12-month rolling correlation with US equities based on monthly returns.
IR is calculated as YOY return of the asset divided by annualized standard deviation.
Returns for Energy, REITS, and Metals & Mining are from 1974, returns for FX Carry are from 1975, and returns for GSCI Commodity index and Oil are from 1971.
Equity PBK, Dividend Yield, Momentum, Low Variance, Low Residual Variance and FI Momentum, and FI Carry and FX Carry factor strategy returns are long-short.
Energy and Metals & Mining sector returns are relative to broader US equity market.

Source: AQR, Ken French data library, Datastream, and Bernstein analysis

But the macro state is not enough to determine allocations alone. We care a lot about starting valuations. Exhibit 157 shows the current yield for a selection of these assets or strategies and compares them to their historical yield. Famously, one cannot value gold, so it is not included here, but in our recent note[29] we showed that on the basis that we can value nearly everything else, we expect gold to offer better returns relative to 60:40 from today's starting yields.

Income stocks and Value stocks stand out on this basis, not only for their absolute current yield but also in the way their yields in both cases have increased relative to history. This is also the case for Energy sector equities. REITS and high-yield credit, while ranking well on absolute levels of yields, have actually seen a marked decline compared to their average yields. This valuation work again underlies the importance of including factors alongside asset classes in forming a portfolio for the current environment.

[29] Portfolio Strategy / Global Metals & Mining: Scrap 60/40 and go mining for gold

EXHIBIT 157: **Income yield for select strategies and assets**

Yield	US High DY	US Low Vol	US Momentum	US Cheap PBK	US High Yield Bonds	US REITS	US Energy Sector	US Metals & Mining sector
Current	5.66	1.81	0.97	4.08	7.69	3.51	5.28	1.45
Average	4.34	2.73	1.13	2.28	8.80	3.86	2.58	1.53
Curr-Av	1.32	-0.92	-0.16	1.80	-1.11	-0.35	2.70	-0.07

Yield	US 10y Yield	US Equities	Europe Equities	EM Equities	FI Momentum	FI Carry	FX Carry
Current	0.63	1.74	2.64	2.59	1.01	0.97	0.12
Average	6.28	1.94	3.03	2.29	4.53	2.55	3.01
Curr-Av	-5.65	-0.21	-0.39	0.30	-3.52	-1.59	-2.89

Note: Equity High DY, Low Volatility, Momentum, PBK, FI Momentum, FI Carry, and FX Carry strategies are long only.
Average is calculated since 1990 for all strategies except REITS (since 1999) , US 10-year bonds (since 1970), and US high-yield bonds (since 1997).

Source: FactSet, Datastream, FRED, and Bernstein analysis

Own gold

We also remain overweight gold. Famously one cannot value gold. However, we can value (nearly) everything else! Exhibit 158 shows the forward return of gold relative to a 60:40 portfolio (based on US equities and bonds) conditioned on starting levels of equity valuation and bond yields. As we move down the tables, it shows higher starting levels of valuation of equities and there is a clear indication that the relative performance of gold to 60:40 increases as starting equity valuations increase. The relationship with starting levels of bond yields is not quite so clear, but one conclusion is that the worst relative gold returns are from when starting levels of yields are high. There have not been occasions in the last 50 years when both equity valuations have been high and bond yields high. The conclusion from this is that on the basis of valuation of other assets, the prognosis for gold returns relative to 60:40 is good. Equity valuations are in the top quintile of Shiller PE and bond yields are as far as they could be from the high starting levels that tend to create a bad set up for gold.

From a multi-asset perspective, adding gold into a portfolio can be hard as it does not pay an income. Moreover, for long periods of time, the real return from the asset is zero. Thus, it can often be a drag on portfolio performance. But that does not seem to be the case at present, given the starting valuation and yields on other asset classes.

EXHIBIT 158: **Gold vs. 60:40 – average (annualized) return conditioned on equity valuation bond yield**

Gold - 60/40: 1 Year Return

		BY Low				*BY High*	
		1	2	3	4	5	Avg
Shiller Cheap	1			25.4	12.6	-9.2	-1.9
	2	4.0	14.8	58.2	-6.4	-20.7	8.5
	3	-10.8	8.9	2.4	-17.7	-2.1	-3.3
	4	-6.9	13.8	-28.1			1.0
Shiller Exp	5	-0.6	9.0	-13.3			-3.2
	Avg	-6.1	11.7	6.9	-2.0	-11.0	

Gold - 60/40: 3 Year Return

		BY Low				*BY High*	
		1	2	3	4	5	Avg
Shiller Cheap	1			55.6	15.3	-16.7	-5.8
	2	7.3	8.0	15.5	-6.1	-16.7	-1.1
	3	-14.5	2.7	-11.4	-13.0	-13.4	-9.4
	4	-5.0	14.1	-25.5			2.1
Shiller Exp	5	1.0	4.7	-3.0			0.2
	Avg	-8.2	9.3	-3.7	-0.3	-16.6	

Gold - 60/40: 5 Year Return

		BY Low				*BY High*	
		1	2	3	4	5	Avg
Shiller Cheap	1			10.8	9.3	-16.7	-8.1
	2	-5.6	-4.5	7.3	-5.2	-15.0	-3.5
	3	-12.1	-1.9	-16.0	-15.5	-17.5	-11.4
	4	-4.6	13.3	-17.8			4.5
Shiller Exp	5		7.7	0.4			3.3
	Avg	-9.3	8.0	-5.3	-2.1	-16.4	

Gold - 60/40: 7 Year Return

		BY Low				*BY High*	
		1	2	3	4	5	Avg
Shiller Cheap	1			4.3	-0.4	-16.4	-11.1
	2	-7.0	-5.7	13.2	-8.2	-14.6	-3.7
	3	-10.0	-1.8	-12.5	-16.9	-13.1	-9.8
	4		8.4	-9.6			4.6
Shiller Exp	5		9.5	2.6			5.4
	Avg	-9.5	5.8	-1.0	-6.9	-16.1	

Gold - 60/40: 10 Year Return

		BY Low				*BY High*	
		1	2	3	4	5	Avg
Shiller Cheap	1			-3.2	-5.2	-15.7	-12.3
	2	-6.1	-5.5	4.0	-11.9	-16.7	-8.2
	3	-6.1	-0.3	-8.0	-12.1	-16.0	-6.6
	4		1.9	-4.8			0.5
Shiller Exp	5		10.7	6.4			8.1
	Avg	-6.1	3.1	-0.1	-9.8	-15.9	

Note: Data from June 1972 to April 2020

Source: Datastream, IBES, MSCI, and Bernstein analysis

Outlook for diversification and cross-asset returns

We can draw a few conclusions from this work. We have worried about the strategic outlook for returns and availability of diversification for some time. The impact of the pandemic and its associated policy response has acted as an accelerant in this regard and made the situation even more extreme.

If we assume a moderate increase in inflation, then equities become the core strategic holding. But at the same time it becomes necessary to add strategies or factors alongside asset classes in an asset allocation framework. We think these should increasingly be thought of as interchangeable sources of "beta."

Within this context, high-grade government bonds are likely to be less useful as a diversifier. Instead, a range of other options are needed. Especially when the current yields on assets and strategies are taken into account. These portfolio holdings are likely to have to include income and low volatility within equities and carry strategies in fixed income along with gold.

We note that in theory real estate is meant to be an inflation hedge, but we do not think that is attractive. Its correlation with equities rises with inflation, its current income level is lower than its average level, and we think the near-term outlook for commercial real estate will be horrible tactically (given the recession) and strategically (given the shifts in retail, leisure, and other commercial demands in the long run, as a result of the lockdown).

One asset that we have not discussed here is infrastructure. Our usual proxies for infrastructure (a subset of Utility companies with high exposure in this area) is not sufficient for us to analyze how they perform as inflation rises. However, we feel we can assert that infrastructure assets *should* be inflation hedges and could receive an added boost as a result of stimulus efforts by governments.

CRYPTOCURRENCIES IN ASSET ALLOCATION – I HAVE CHANGED MY MIND!

OVERVIEW

- I have changed my mind about bitcoin's role in asset allocation. In January 2018, we declared that it had no such role. But actually, in our note written in November 2020, we had to admit it does. What has changed is the policy environment, debt levels, and diversification options for investors post the pandemic.

- Writing about cryptocurrencies after bitcoin has staged a large rally in recent weeks — followed by a correction — may inevitably sound like playing catch up. As a strategist, it is depressingly like upgrading a stock after it reaches a new high. Given the volatility of cryptocurrencies, then no doubt over tactical horizons they can give up yet more of their recent gains, but this chapter is aimed firmly at the long-term not tactical horizons. The pandemic poses some profound questions for the role of cryptocurrency and potentially transforms its role.

- This chapter is about two related aspects of crypto: the role of crypto in asset allocation and the way its potential as a medium of exchange affects the ability to implement policy. This is bound up in the question of power of governments and their likely larger role in economies post Covid-19. This, in turn, has massive implications for asset allocation.

- It is relatively easy to create a narrative of why demand for cryptos might increase, given the economic status quo post Covid-19. A counteracting force is: what is the limit on supply? Bitcoin has a limited supply, but a multitude of cryptos have been created. In theory, total crypto supply is unlimited. However, in this respect, they are like fiat currencies. In practice, only a small number are used for investment. Thus, at any given time, the supply of cryptos could be limited "for practical purposes," though the exact enumeration of which cryptos are on that list will vary over time.

- The role of cryptos in asset allocation inevitably leads to a discussion of what is money? In this light, the pandemic acts as a new force both for and against cryptos. On the positive side, there will likely be increased demand as a result of fiscal expansion, the likelihood of inflation, the likelihood that taxes increase, and the change in the debate whereby MMT-related policies are increasingly discussed. In other words, the greater role that governments will likely play in economies makes cryptos potentially more appealing. These very same forces may also hinder cryptos. If they get in the way of policy implementation, governments might seek to constrain them.

DETAILS

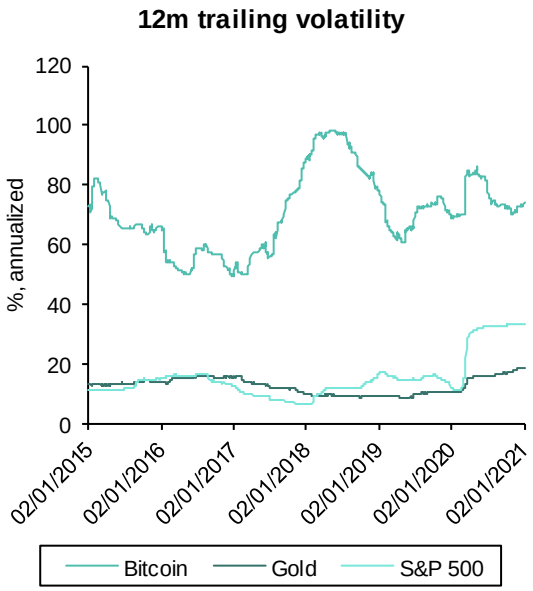
Do cryptocurrencies have a role in asset allocation?

When we posed this question in 2018, we concluded that they did not have such a role. We would like to shift that position and say well actually yes, maybe they do. There are a few ways to view this question. Probably easiest is to see this through the narrow lens of an asset allocation problem. We start the chapter with this, as it is the least controversial way to address the problem. In this light, it becomes a purely empirical question and avoids the quasi-philosophical question of "what is money?".

We are not going to talk about gold in this chapter, but for us the arguments outlined here lead primarily to a case to remain overweight gold. We most recently outlined our case for this in Portfolio Strategy / Global Metals & Mining: Scrap 60/40 and go mining for gold. We see cryptos as potentially playing a role alongside the precious metal.

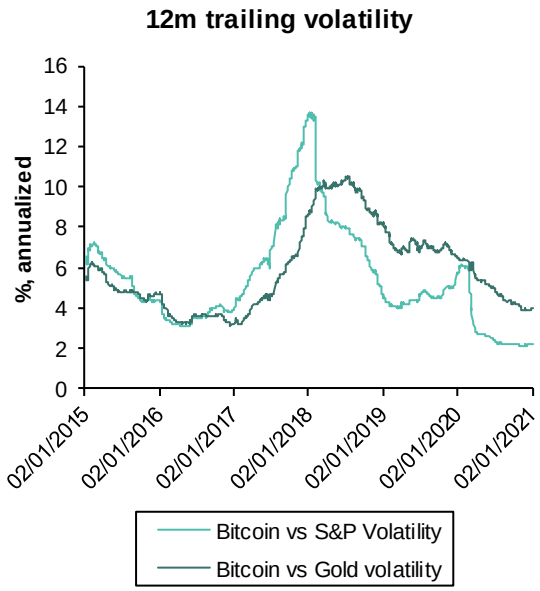
There has been a marked change here since we declared that bitcoin has no role in asset allocation three years ago; these changes have occurred both to the empirical return data of bitcoin itself and also to the policy framework in which investors operate. With regard to the former, the volatility of bitcoin has significantly reduced, making it more attractive in its potential twin roles *both* as a store of value and as a medium for exchange (see Exhibit 159). Given increases in volatility of other asset classes, this means the relative volatility of bitcoin to both gold and equities has declined to historically low levels (see Exhibit 160).

EXHIBIT 159: **Volatility of bitcoin, gold, and equities**



Source: Datastream and Bernstein analysis

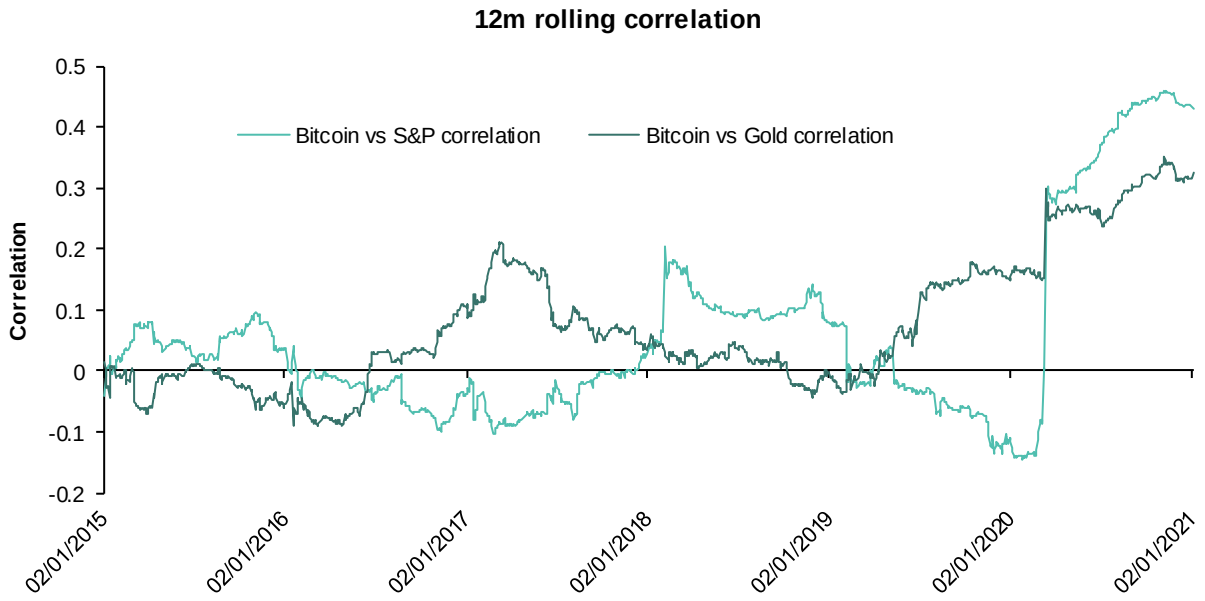
EXHIBIT 160: **Relative volatility of bitcoin vs. equities and gold**



Source: Datastream and Bernstein analysis

However, the pandemic has also seen the correlation of bitcoin to other major assets rise. The basic issue is that it is a liquid asset, so in times like early March 2020 it can be sold easily and, hence, does not escape from a rapid cross-asset deleveraging. The correlation of bitcoin to other assets has remained high (see Exhibit 161).

EXHIBIT 161: **Correlation of bitcoin to gold and equities**



Source: Datastream and Bernstein analysis

What does this mean for its role in asset allocation? We will come to the big picture question later in this chapter. From a narrow empirical point of view, the downward shift in volatility of bitcoin makes it more desirable, but its increased correlation points the other way. If we put this into a simple asset allocation framework, Exhibit 162 shows the weight on bitcoin that would result, given a range of possible assumed return outcomes for the currency. This is a very simple optimization with the only constraint being that weights can't be negative. The first column uses trailing return and risk data since 2016, the other columns then assume a range of monthly return numbers for bitcoin.

The recent increase in correlation, but decrease in volatility leave these recommended allocations at levels similar to before the pandemic. The resulting allocation to bitcoin is low, but then within this simple optimization framework, the allocation to some other asset classes is zero, so in that context, bitcoin seems to empirically be potentially significant.

EXHIBIT 162: **Recommended asset allocation under different assumed bitcoin average monthly returns**

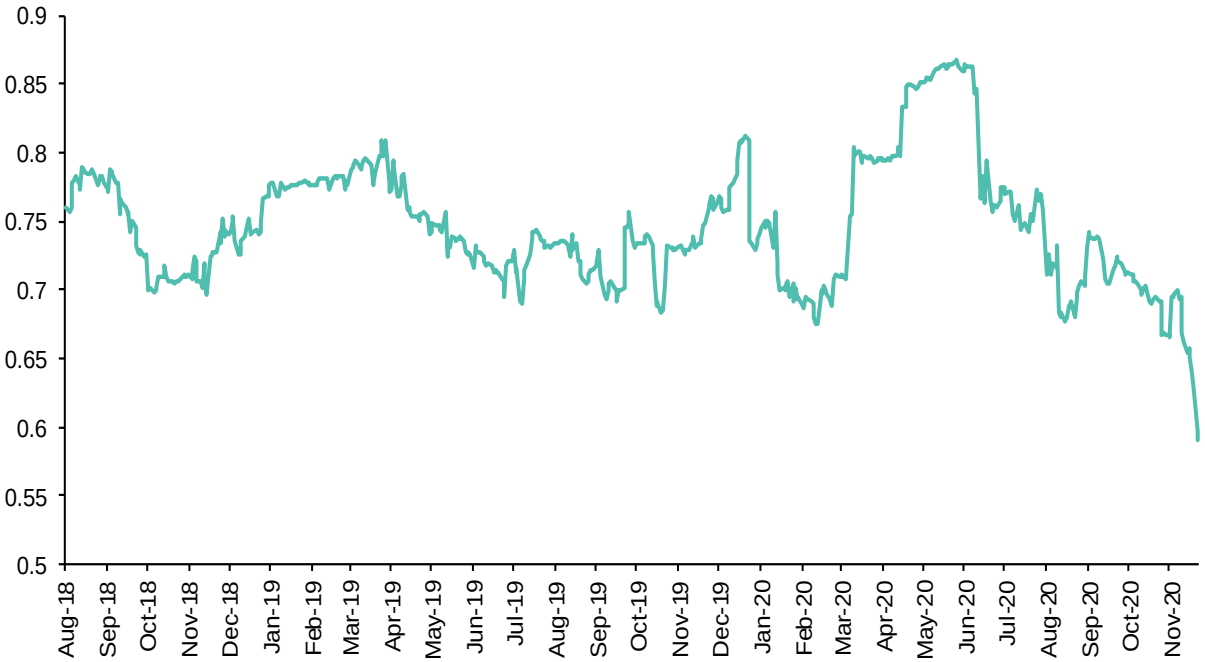
	Assumed Bitcoin average monthly return				
	9%	**1.50%**	**3%**	**5%**	**10%**
S&P 500	**29%**	27%	31%	31%	29%
EAFE	**0%**	0%	0%	0%	0%
EM	**0%**	0%	0%	0%	0%
Commodities	**0%**	0%	0%	0%	0%
US 10 Year Gov Bond	**66%**	65%	67%	67%	66%
High Yield	**0%**	8%	1%	0%	0%
Investment Grade	**0%**	0%	0%	0%	0%
International Treasuries	**0%**	0%	0%	0%	0%
Bitcoin	**4%**	0%	1%	2%	5%

Note: The analysis uses the return and risk data from January 2016 to October 2020. The risk-free rate is calculated as the average three-month US treasury yield since 2016. First column shows the weights of an optimal portfolio using actual return and risk numbers from January 2016.

Source: Datastream, Bloomberg, and Bernstein analysis

While bitcoin has become less volatile, though albeit more correlated with equities, there has been a marked de-correlation between cryptocurrencies over the last year. Exhibit 163 shows the rolling pairwise correlation between the 10 largest cryptos by market cap and Exhibit 164 shows the correlations between the individual pairs.

EXHIBIT 163: **Average pairwise correlation of cryptocurrencies**



Note: Average pairwise correlation of daily price returns over a rolling three-month lookback window for the cryptocurrencies: bitcoin, bitcoin cash, dash, EOS, ethereum, ethereum classic, litecoin, monero, XRP, and zcash.

Source: Bloomberg and Bernstein analysis

EXHIBIT 164: **Correlations of cryptocurrency pairs over the last 12 months**

	Bitcoin	Bitcoin Cash	Dash	EOS	Ethereum	Ethereum Classic	Litecoin	Monero	XRP	Zcash
Bitcoin	1.00	0.81	0.59	0.80	0.82	0.71	0.85	0.80	0.52	0.67
Bitcoin Cash		1.00	0.64	0.88	0.81	0.79	0.84	0.78	0.69	0.73
Dash			1.00	0.62	0.58	0.59	0.60	0.63	0.52	0.78
EOS				1.00	0.81	0.75	0.86	0.76	0.69	0.67
Ethereum					1.00	0.67	0.83	0.77	0.71	0.74
Ethereum Classic						1.00	0.75	0.66	0.52	0.64
Litecoin							1.00	0.76	0.60	0.70
Monero								1.00	0.59	0.70
XRP									1.00	0.64
Zcash										1.00

Note: Correlation coefficient of one-day price returns for each pair of cryptocurrencies over the most recent 12 months as of November 2020.

Source: Bloomberg and Bernstein analysis

SAA and the need for liquidity

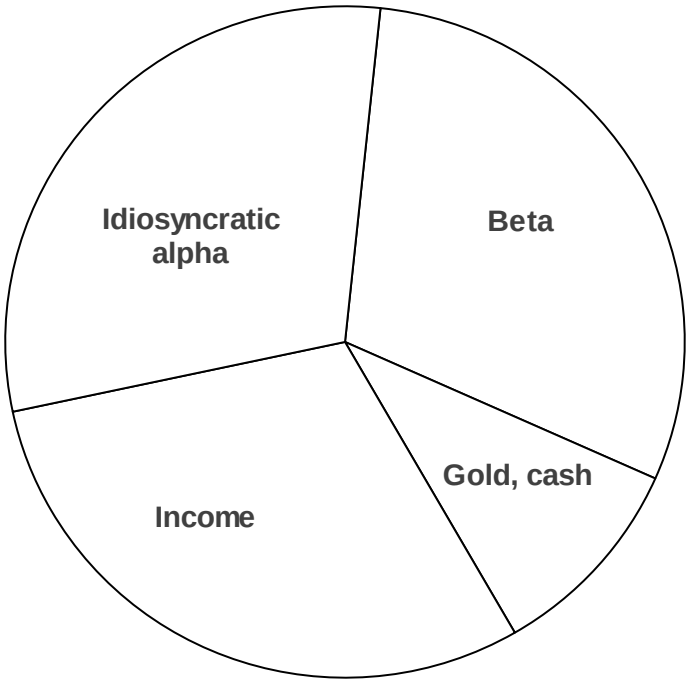
But we can ask a broader question than the narrow one of an "optimal" allocation. Such an approach is never going to really be a sufficient answer as optimizers miss the big picture.

In early 2020, we outlined our preferred approach to asset allocation.[30] Rather than thinking of this in terms of traditional asset classes, we think a more fundamental division is between beta, idiosyncratic alpha, and income. Alongside that is the need for an allocation to gold and cash for purposes of liquidity (see Exhibit 165). Given the potentially greater risk for fiat currencies, as discussed next, we think cryptocurrencies could potentially fit in this latter category. With greater allocations to illiquid assets and the potential that liquidity has become significantly more fragile in major markets,[31] this becomes more urgent.

[30] A New Paradigm for Investing

[31] Global Quantitative Strategy: Liquidity poses a strategic challenge to investors

EXHIBIT 165: **Building blocks for asset allocation**



Source: Bernstein analysis

Crypto as an inflation hedge

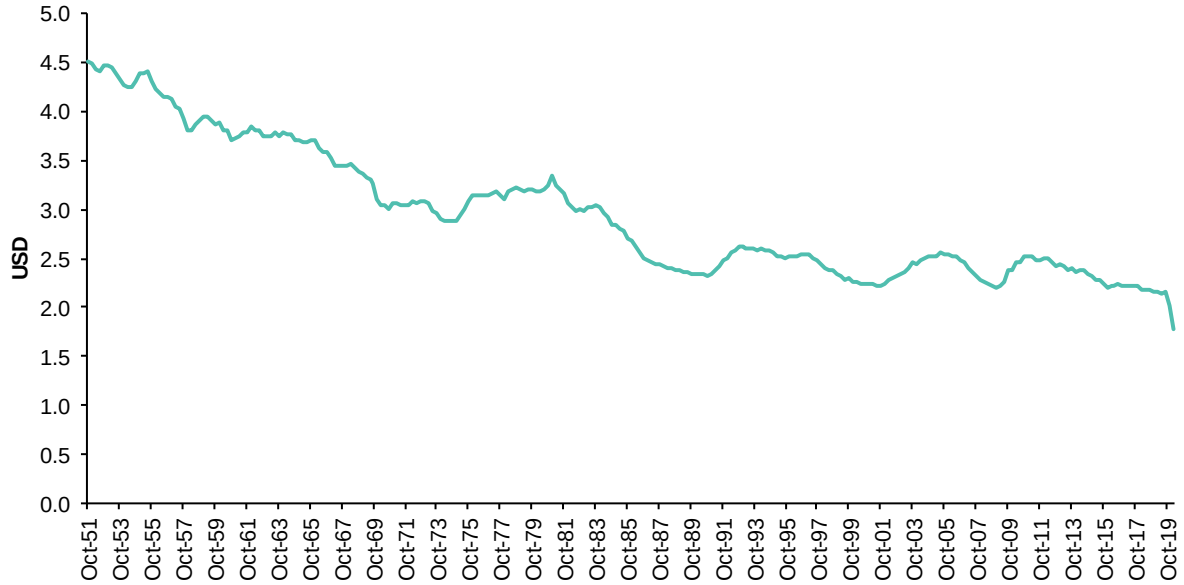
This brings us to its role as an inflation hedge. This phrase is used somewhat too loosely. Technically, a hedge is something that should move in a way to exactly offset another position. There is no good reason to suspect that a given cryptocurrency should exactly move in a way that would counteract inflation in a given fiat currency. Indeed, apart from a fall in the value of bitcoin in March 2020 alongside a fall in inflation expectations, for the last five years the correlation between bitcoin and inflation expectations has been close to zero. So the issue is really a more general one of "can cryptos be expected to do well if inflation rises?". This is important as we would claim that equities, real assets, and gold are inflation "hedges." Related to this is the question of whether it can act as a diversifier as inflation rises.

We have made the case in recent research that the policy response to the pandemic is, on balance, likely to be inflationary. But we also acknowledge that there are strong deflationary background forces and also the likelihood that unemployment remains very high for an extended period. We laid out the case for and against an inflationary outlook in the "Inflation, Investing, and the Coming of MMT" chapter. We think, on balance, there is an economic argument that the outcome will be inflationary, though it is really politics that tips the balance in favor of inflation rather than macroeconomics. The likelihood that the velocity of money may decline means that monetary expansion might need to be even

greater, putting more emphasis on fiscal policy: Fund Management Strategy: Savings, velocity, inflation and pension investing. We have also discussed the empirical question of where inflation might show up: Portfolio Strategy: So where, exactly, might inflation show up?. In Fund Management Strategy: Post-Capitalism and Chronophobia - Towards a new regime for retirement and financial markets, we discussed the case for UBI and what this means for inflation, investment, and retirement.

In this reading, the driver of bitcoin is similar to that for gold: it is debt levels in major economies having attained the same level as the end of WWII, as we showed earlier in this *Blackbook*. Moreover, there has been declining productivity of debt for decades (see Exhibit 166). This potentially puts semi-permanent upward pressure on debt levels as it implies that a greater amount of debt is required to produce a given level of GDP. Granted, the affordability of that debt is greater now, and in the US at least this debt has been "termed out" to greater maturities, but this implies it is hard to reduce the debt stock.

EXHIBIT 166: **US debt productivity**

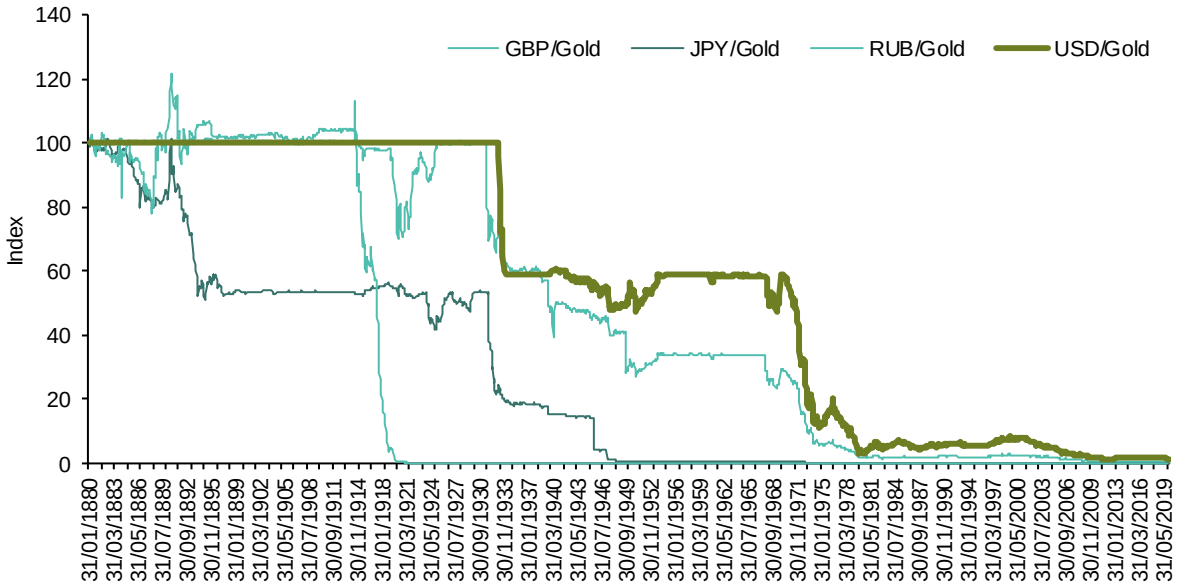


Note: US GDP per dollar of non-financial corporate business debt (debt securities + loans).

Source: US Federal Reserve and Bernstein analysis

Exhibit 167 shows the indexed exchange rate of major currencies against gold since 1880. The evidence seems to be that currencies issued by sovereigns face long-term terminal decline against gold either through revolution, war, or growing debt. We note in passing that this ignores the effect of income-paying assets; so, e.g., equities denominated in USD would clearly have beaten gold by a huge degree over this time. For crypto bulls, the claim would be that they could potentially fulfil a similar role as gold in this regard.

EXHIBIT 167: **Sinking without trace? Major currencies against gold since 1880**



Source: GFD and Bernstein analysis

Central bank digital currencies; could cryptos be banned?

Central banks have increasingly discussed the possibility of launching their own digital currencies,[32] so-called central bank digital currencies (CBDC). There are a range of possible advantages here in terms of payment technologies that are not in the scope of this chapter. One major motivation, however, would be that it would allow the possibility, in theory, of imposing negative interest rates. This is hard to do with conventional currency, as at some level of negative interest rates, it would lead people to withdraw their money from banks and store it at home. That is not desirable for a number of social reasons (increased crime being one), but it also imposes an effective lower bound on rates that banks can charge retail customers. If central banks are increasingly exploring such options, what effect would that have on cryptocurrencies?

It is not just the potential desire to explore deeply negative rates that could be an issue here. As tax burdens likely rise, including wealth taxes, that may create more demand for cryptos. There have already been examples where changes in government policy have created a demand for cryptocurrencies. One extreme example is in Cyprus, which in 2013 had to impose a drastic levy on bank deposits.

We think the launch of CBDCs could encourage and legitimatize the use of digital currencies in general. However, it also points to a problem with cryptos. A property that makes them potentially attractive for asset allocation — i.e., their resistance to being debased in an attempt to reflate the economy — is actually a possible impediment for them. Were cryptos to be very widely used, they could seriously hamper an ability for policy to counteract a recession. In a sense, that is part of the point of them, they are not subject to

[32] See, e.g., https://www.bloomberg.com/news/audio/2020-10-21/beno-t-c-ur-on-central-bank-digital-currencies-podcast.

a sovereign power. This is what may excite libertarians, but it also raises social questions about whether that is the best result for all. What would Jeremy Bentham think? In cryptos' defense, they are at least the most egalitarian of all assets in that they are genuinely open to all to buy, whether or not they have a bank account.

It is the core advantage of cryptos that they are outside the bounds of sovereign power when it comes to debasement, taxation, and nationalization; that also raises the question of what happens if they get in the way of governments implementing policy? Could cryptos be outlawed by governments as gold was in the 1930s? Discussion of this usually revolves around their role in illegal activities. Leaving that to one side, if cryptos caught on so much that they hampered a policy attempt to reflate an economy (e.g., through the use of negative rates), then one can imagine a case being made for them to be banned. It is often claimed they would be hard to outlaw, given they are so decentralized, but we don't think that people should underestimate the power of governments to rule out activities they don't like.

Yes, cryptos might have an advantage in taking out costs, i.e., at least some of the cost that the banking sector charges the rest of the economy. That can help drive their adoption. Though, in turn, this raises the question of whether disintermediation of banks would imperil the credit creation process. As with the debate about the money supply, there are pros and cons. This would remove costs and could potentially mitigate credit bubbles, but credit creation by private banks is central to how capitalism works. The bottom line is that cryptos get in the way of reflationary policies that could be damaging for the real economy. Of course, cryptos have to be huge for this to have an effect; at the moment they are tiny in this regard, so this prospect is a long way off.

Bitcoin's big ESG problem

From an ESG perspective, bitcoin's energy consumption presents a big challenge. Can this be offset by other considerations of social utility? According to the Cambridge Centre for Alternative Finance, bitcoin's annual electricity consumption is greater than that of Finland.[33] On top of that, there is also the issue of CO2 intensity. The Cambridge data also shows that more than 78% of bitcoin processing power currently comes from only three countries — China, Russia, and Kazakhstan — that have a high CO2 emission intensity. As a result, a recent study by Joule scientific journal examining the carbon footprint of the bitcoin network estimated that its annual carbon emissions range from 22 megatons to 22.9 megatons of CO2 annually, which is comparable to the emission levels of Jordan and Sri Lanka.[34] Thus, while the bitcoin network currently processes only a tiny fraction of financial transactions p.a., it has an energy footprint that is multiple times higher than that of banks and other financial intermediaries. And the energy demands will grow larger in future, as the bitcoin network expands and the number of processed transactions grows larger. However, we would note that this could be mitigated, if in future, a larger proportion of energy required to maintain the network could be generated from renewable energy sources.

From a social perspective, bitcoin and other cryptocurrencies have been associated with a number of illegal activities, such as drug purchases, money laundering, and tax evasion. As

[33] https://cbeci.org/cbeci/comparisons
[34] https://doi.org/10.1016/j.joule.2019.05.012

our sector analysts noted, many countries currently do not have a structured framework for dealing with cryptocurrencies. Nevertheless, over the past few years, regulatory scrutiny of these assets has intensified significantly.[35]

Offsetting this there are positive social considerations. For significant parts of the world's population who do not have access to bank accounts, there can be very tangible benefits from greater acceptance of cryptocurrencies. This could be a meaningful social improvement for populations of poorer countries. Vigna and Casey (2015)[36] open their book with a discussion of how this can help women in countries where they are not allowed access to the banking system.

What is money?

All this inevitably leads to an almost philosophical question of what, actually, is money anyway? Montaigne warned us only to philosophize by accident, so this comes at the end of the chapter and as the result of the discussion of cryptocurrencies as an investment rather than as a precursor to it.

Once we move beyond the narrow empirical question of the volatility and diversification of a currency such as bitcoin and what it does in a portfolio from an overall return-risk point of view, then the topic quickly touches on a broad set of fundamental issues. Many of these come down to the role of the sovereign state. After Covid-19, debt levels will be higher, more people will be unemployed and demanding action to address that, and inequality will be greater, which will create social pressures. Governments have become comfortable with allowing large increases in the money supply and at the same time they find themselves in possession of new fiscal tools in their ability to hand out cash to individuals in a way that was not deemed acceptable before the pandemic. All this is to say that governments are likely to play a bigger role in economies and markets post Covid-19. No wonder there is a more intense debate about the concept of MMT. In fact, one could argue that in a sense that has already become the adopted paradigm, albeit without the institutional trappings of automatic fiscal stabilizers. But we do think UBI is likely in at least one developed economy in the next five to 10 years.[37]

These issues provoke linked questions about the role of money and the nature of long-term investment saving. Are cryptocurrencies a form of money in the sense of being a medium of exchange or are they a store of value and, hence, an asset to be used in investment? Well, they can be both, just as cash denominated in a certain currency can be. We don't think people need to obsess too much about this question. Both the role of money and the nature of investing are undergoing changes.

The world had a relatively small number of currencies for hundreds of years, and now the number of potential currencies has exploded. Indeed, conceptual artists Claudia Sambo and Holly English, in a recent work suggested that potatoes could be used as money — https://youtu.be/9HS763kRYIQ. After all, the objection that the supply of potatoes could

[35] For more details see: Weekend Tech Byte: Cryptocurrencies and Blockchain: 10+yrs post Bitcoin's invention - where do we stand?
[36] Vigna and Casey (2015): *The Age of Cryptocurrency*
[37] Fund Management Strategy: Post-Capitalism and Chronophobia - Towards a new regime for retirement and financial markets

increase massively no longer seems to carry much weight as a counter argument to vegetable money in the wake of the Fed creating US$3Tn in 2020. They also propose that the value be tied to their nutritional value, a nice swipe at the argument in economics at what gives value to tokens used as money.

In Book V of *Nicomachean Ethics*, Aristotle teaches us "*Hence all commodities exchanged must be able to be compared in some way. It is to meet this requirement that men have introduced money. [It is a measure of] how many shoes are equivalent to a house or a given quantity of food… Money then serves as a measure which makes things commensurable*".[38] This is the so-called metalist view of what gives money its value; it essentially is a commodity that is deemed to have inherent value that can replace a barter system.

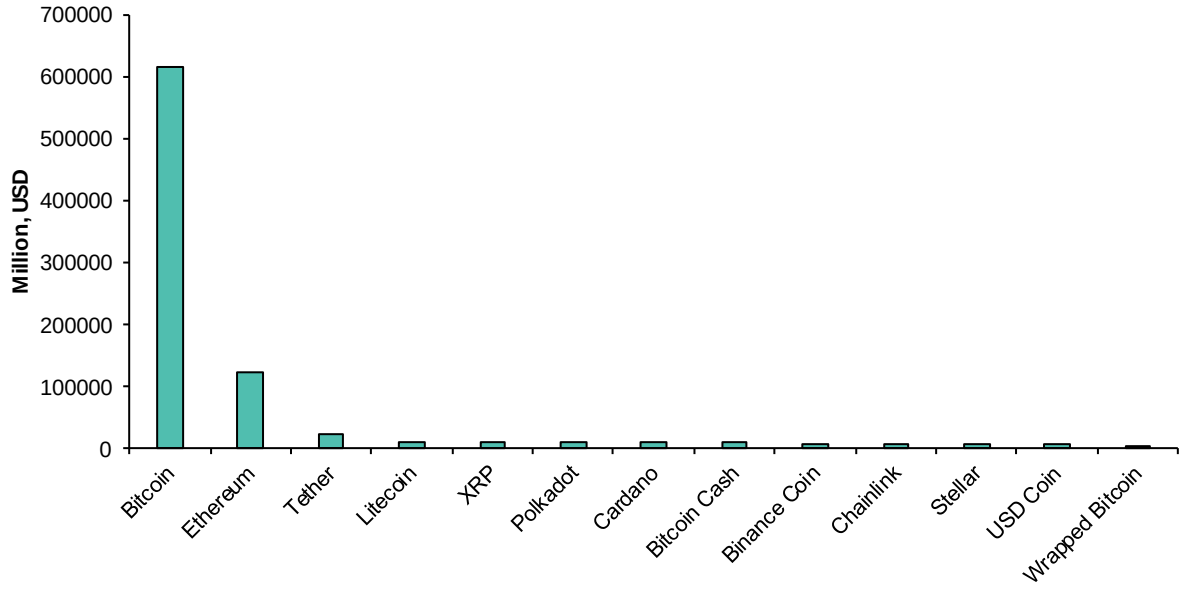
The other approach to the question of "what is money" derives more from a view of social interaction; the claim that money really derives from credit and the need to account for it. This view was eloquently laid out in Graeber's magisterial history of debt[39] with the central claim that debt has a long history in human society and the idea of economic exchange starting with bartering is in fact a myth. On this basis, the ultimate basis for the value of a unit of money in today's society is the demand that is manufactured for it by a government demanding that its taxes be paid in it.

The debate between these two views and how it applies to cryptos was laid out very well in Vigna and Casey (2015). They make the case that both schools of thought can be applied to cryptocurrencies. The metalist view is predicated on the limited supply of cryptos (on which more later in this chapter). The latter or chartalist view is that bitcoin is a payment system with a new basis for what gives users trust in the system. On this view, it is simply a method for recording and settling debt obligations; what makes it interesting is that there is a new distributed basis of trust not deriving from a central authority.

A concern we have always had is that there is a potential supply problem for cryptos. Yes, bitcoin famously has a limited supply, but the number of cryptos has no limit. New ones can be created with ease, so the overall supply of cryptos can grow. However, perhaps this is not so different than the situation with established fiat currencies. There are a large number of them, none of which have limited supply, yet in practice only a relatively small number of them are used for investment purposes. New cryptos can always be created, but if there is no plausible case for their broad adoption, their extra supply is meaningless. So which ones count as being broadly accepted? Bitcoin is clearly at the core of this, and then there are a small group of other ones with reasonably broad acceptance that form an intermediate group, and outside that group coins don't have a role in investment. This intermediate group will likely evolve over time and there won't be full agreement as to which coins qualify. We show the "market cap" of the largest cryptos in Exhibit 168. But then that is the case for fiat currencies too. So, is the supply of cryptos limited? Well, technically no it is not. But *for all practical purposes*, at a given time there may indeed be some limits.

[38] Aristotle: *Nicomachean Ethics Book V*
[39] Graeber (2011) *Debt: The first 5000 Years*

EXHIBIT 168: **Market-cap of the largest cryptocurrencies**



Source: Coinbase and Bernstein analysis

So much for supply. What about demand? A post-pandemic wave of inflation could potentially create significant demand for alternative currencies for all the reasons we have discussed here. But while there might be increased demand for cryptos in general, that is no good if one holds the wrong crypto. As we showed earlier in this chapter, not all cryptocurrencies move together, and indeed their mutual correlation has fallen recently. The increased demand is only useful if it is for the specific cryptocurrency that one holds. Here there is a fundamental linkage between other currencies and sovereignty. Either money is said to be worth something because the token being used has its own inherent worth, or else demand for money in question has to be created. One popular way to think of that is governments and their sovereign ability to impose taxes and determine how these should be paid. Thus, governments can always create a demand for their currency by saying that taxes have to be paid in it. Such support is generally speaking absent for bitcoin, *pace* Zug that has announced that citizens will be able to pay taxes there in bitcoin from 2021. In future, one could imagine tax havens or quasi-failed states without well-established currencies as possibly allowing payment in bitcoin or another cryptocurrency, but it is hard to imagine a major developed nation allowing that; it would undercut sovereignty too much. Thus, there is not likely to be a guaranteed backstop of demand.

The future of cryptos is bound up with the nature of sovereignty, how this interacts with personal liberty, and the major policy decisions that sovereign governments make to steer their economy. To the extent to which the pandemic has accelerated shifts that were underway already and also brought about changes in these domains, then it has also changed the potential role of cryptocurrencies.

In the wake of the pandemic, governments will likely become more powerful (relative to corporations and individuals). Governments probably feel they have earned this right, given the extent to which their intervention was necessary to offset the economic impact of

lockdown (though, of course, those lockdowns were imposed by governments too). We need to get used to a greater role of governments in the economy, e.g., through the decision to extend, or not, direct fiscal measures such as furlough schemes, decisions about whether or not a genuine bankruptcy cycle will be allowed, the likelihood that the tax burden increases, and also on the path of inflation. On the latter, governments have the desire to generate it to deal with the debt burden and now also possess new fiscal tools with which to address that. All these sound like issues true believers in cryptos would point to as a reason to hold them, but one does not need to be an arch libertarian to make the case that policy shifts in these directions make a case for holding cryptocurrencies, as long as one is comfortable with the idea that the supply is limited only "for practical purposes."

Two products of the seventeenth century seem relevant here. The Treaty of Westphalia is traditionally taken as the starting point for the acceptance that sovereign states are the basic units for international law. Later, that century also saw the foundation of the Bank of England as part of an attempt to finance the Royal Navy, but by so doing generated the idea of a central bank with monopoly on issuing money that would then be acceptable for the payment of taxes. If cryptocurrencies became much larger than they are today, they implicitly threaten both these seventeenth century creations. The attractions of cryptos are what also make them potentially an annoyance for policymakers. Cryptos do have a place in asset allocation…for as long as they are legal!

WILL THEY LET THE BANKRUPTCIES CLEAR?

OVERVIEW

- Record credit issuance and a collapse in revenues in 2020 creates the risk of the emergence of many "zombie" companies in 2021. However, the picture is more subtle and depends on the interaction of policy choices, the evolution of the inflation outlook, and the desperation of investors for positive real yields. Gogol's *Dead Souls* tells us how an attempt to trade in the rights to dead serfs stirs up all kinds of social problems. It seems to serve as an appropriate hook for the current state of affairs.

- The quality of corporate debt declined dramatically prior to the pandemic, as investor desperation for yield met a corporate culture that has rewarded issuing debt to fund buybacks. This "should" have led to a significant bankruptcy cycle at the first sign of a recession. Instead, that has been put on hold by policymakers for eminently sensible social reasons.

- A key policy decision is to what extent will authorities want to let corporate bankruptcies "clear"? The Fed and the ECB have taken the decision to prioritize the ability to raise capital over price discovery, but in 2021 this will be less important. A rise in bankruptcies and defaults seems a text-book route to directing capital to businesses that are still viable after the pandemic, but at the cost of yet more unemployment. Which goal will prevail?

- It seems likely that US authorities will be more tolerant of bankruptcies, partly for "cultural" reasons but also, while the unemployment rate will remain very high in the US, at least we know what it is, and it is likely to decline somewhat as conditions improve.

- In Europe, there may be more nervousness about such an eventuality. The true unemployment rate in Europe is unknown, given furlough schemes. Also, SMEs form a larger part of the European economy and they will be particularly vulnerable. Thus, we may not see as much "clearing" of bankruptcies, with more corporate zombies as a result.

- A clearing of bankruptcies plus a resurgence in inflation over 2021 implies divergent paths for companies, especially in the US. We can see the case in the US for there being three kinds of indebted companies: (1) Those that have taken advantage of current conditions to issue long-maturity fixed-term debt. Assuming their business model survives intact, rising inflation can shrink the real value of their debt in coming years. (2) Companies that go bankrupt as their revenues don't come back and they find it hard to refinance. And (3) given real rates will be anchored low and debt maturity is long, there will still be a cohort of corporate zombies.

- We do not think that aggregate credit spreads will significantly widen in the near term, given the Fed's ability to support. But as a divergence of corporate outcomes becomes clearer, there should be more defaults and, hence, some case to buy equities of better balance sheet quality companies. Longer term, the winners are those that can benefit from inflation shrinking the real value of their long-term debt.

DETAILS

In Gogol's *Dead Souls*, Chichikov goes around collecting the rights to dead serfs. They serve no possible use, but through bureaucratic loopholes and inertia they allow the "hero" to acquire on paper an apparently valuable asset. Though in the process, we discover the depressing level of greed exhibited even in the carving up of worthless assets and that he is ostracized from society, as the act of amassing rights to dead souls is deemed too disturbing to be countenanced by polite society.

'No, what I'm referring to is not exactly peasants,' said Chichikov. 'I wish to have the dead ones…'. There and then Manilov dropped his chibouk on the floor, opened his mouth and so remained, mouth agape, for several minutes.[40]

2020 has seen record debt issuance by corporates. When combined with the wiping out of profits for so much of the corporate sector, this implies 2021 will see investors facing up to a raft of companies becoming debt "zombies." That case is easy enough to outline, but we think the narrative is subtler than that. Discerning what it means for investors brings together a view on what policy makers want to achieve plus how desperate investors are for assets that bear a positive real yield and in addition the ability of inflation to sustainably emerge. So, positioning portfolios for this depends on the confluence of policy objectives, macro outcomes, and changing investor needs.

We think there will inevitably be a very significant number of companies that will not survive the pandemic. However, many of them will have managed to find support through the ability to access credit along with a combination of furlough schemes, business support schemes, deferring of real estate charges, and other measures that have been possible, given the exceptional circumstances of 2020. Figuring out which companies are actually going concerns and which are not is going to be a major topic for 2021.

Policymakers have prioritized the capital-raising function of markets over their price-discovery function for eminently sensible social reasons. Nowhere has this been more apparent than in credit markets. But how long can this be expected to continue? There is a strong case to be made that authorities should want price discovery to return, or more bluntly that they will want the bankruptcies to clear through the system so that investors can work out which companies have a future and which do not. However, this will not be politically easy, as it implies in the near term that there will be a new cohort of people made unemployed even as a recovery takes hold. A second consequence could well be a further market share gain by larger companies that can continue to access credit vs. smaller companies (especially SMEs) which fail. Both of these are going to be highly politically

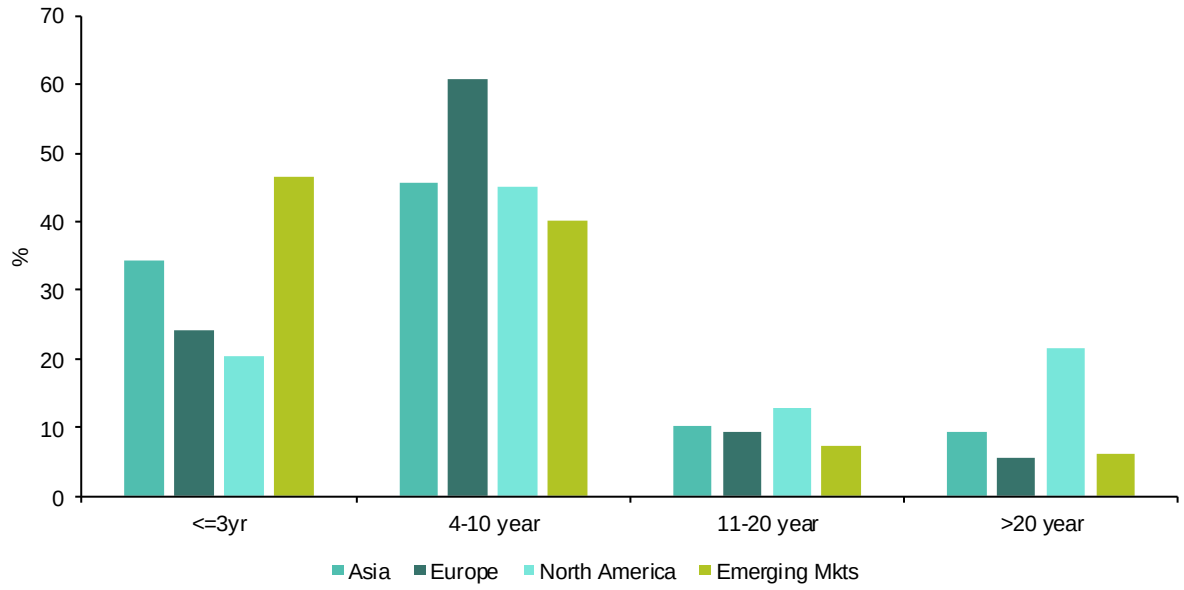
[40] Nikolay Gogol: *Dead Souls*

contentious issues that are at odds with the *zeitgeist* in US and European political discussion.

Exhibit 169 gives an indication of which regions' corporate debt stresses may be most acute. It shows the percentage of current total corporate non-financial debt falling due within each broad region over various future time horizons. Emerging market companies will need to redeem or refinance a larger portion of current outstanding debt in the near term than any other region, as 46% of current debt is due to mature within the next three years and 40% maturing four to 10 years in the future, shown by the left-hand bars on the chart. In contrast, North American companies have the smallest portion of debt falling due in the next three years at 20% and also the highest portion of debt with the longest maturity with 21% due later than 20 years in the future. Asia and Europe fall somewhere in between, but Asia is more exposed to near-term debt maturity (34% of total debt) and Europe has a higher portion of debt maturing over the medium term, with over 60% falling due four to 10 years in the future.

Exhibit 170 shows that US companies have continued to increase the maturity of their stock of debt. Of all the debt issued by US corporates in 2020, 98% is of duration greater than three years and 49% has a maturity date of greater than 10 years.

EXHIBIT 169: **Aggregate debt maturity by region (%)**



Note: Percentage of outstanding debt maturing over various maturity windows. The universe is the constituents of the MSCI All Country World Index excluding Financials.

Source: Bloomberg and Bernstein analysis

EXHIBIT 170: **Taking advantage of lower for longer…maturity of US corporate bond issuance in 2020**

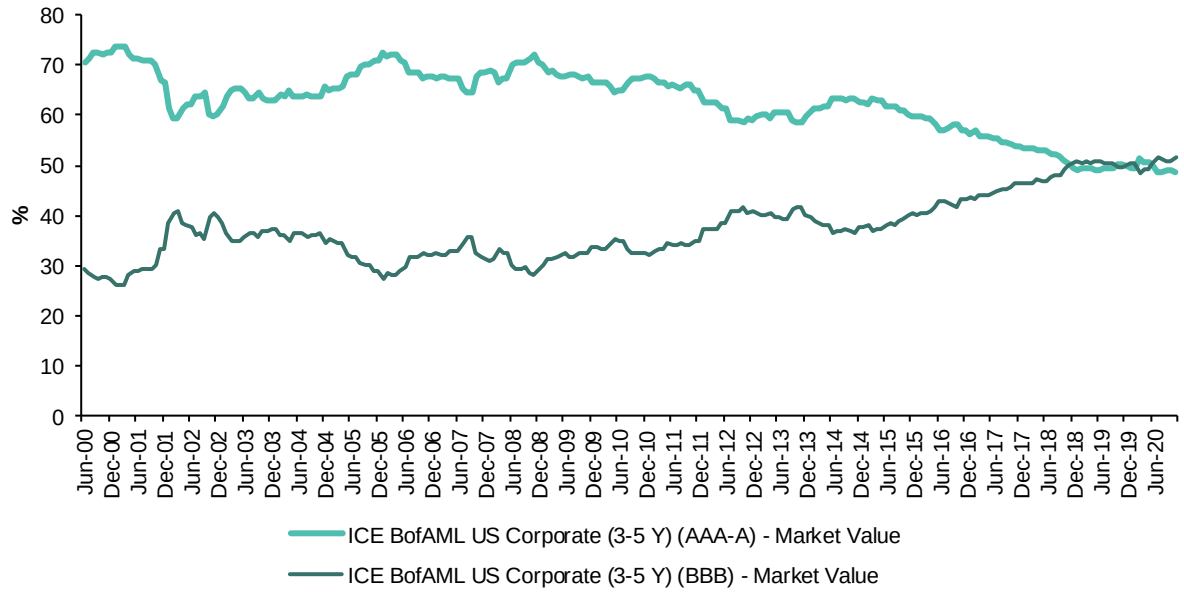
	Value (USD bn)	% of total
> 1 year	1698	100
> 3 year	1656	98
> 5 year	1520	90
> 7 year	1135	67
> 10 year	837	49

Note: Value of corporate bonds issued by US corporates in 2020. Taken from the LEAG page on Bloomberg. Universe excludes issuance by Financials stocks.

Source: Bloomberg and Bernstein analysis

Even before the pandemic it was apparent that the quality of debt had materially declined. The proportion of investment-grade debt that was rated BBB, i.e., at the lowest possible tier of investment grade, first passed the 50% point a year before the pandemic (see Exhibit 171). There were two dynamics at work here: on the one hand, an increasing desperation by investors in search of yield and on the other a stock market dynamic (and management payout culture) that encouraged issuance of low-quality debt in order to buy back stock over the last decade. This suggests that, other things being equal, a recession *should* cause a larger-than-normal increase in credit spreads. As it turns out, central bank buying of credit has proved a much more powerful force, but the question of debt quality remains in the background.

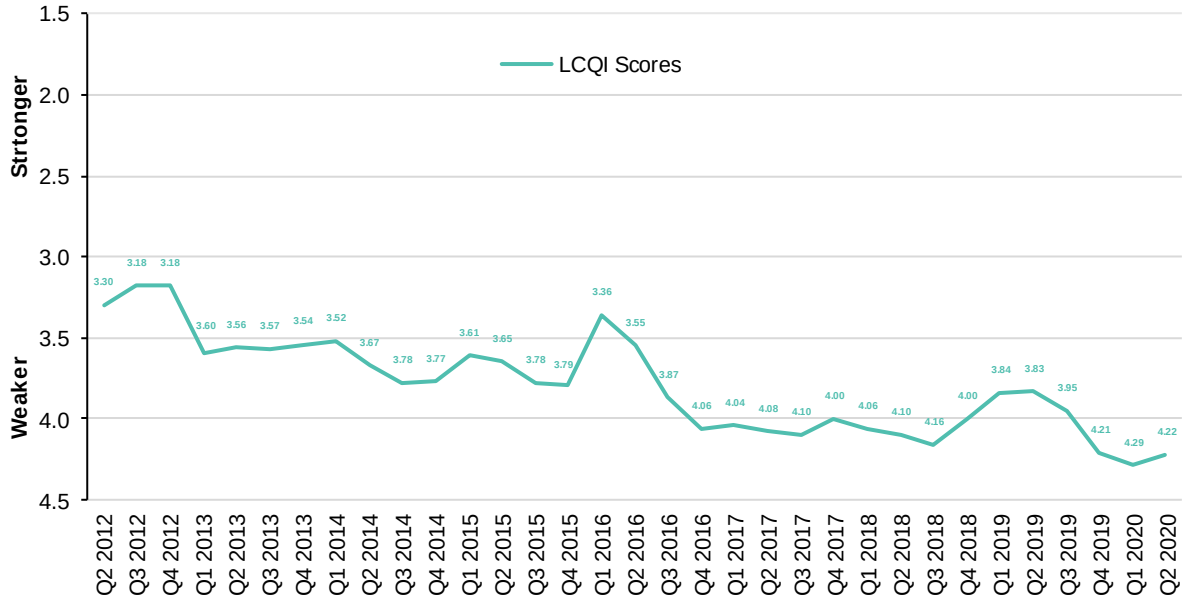
EXHIBIT 171: **Corporate debt quality was declining long before the pandemic; proportion of investment-grade debt rated BBB vs. above BBB**



Source: FactSet and Bernstein analysis

This decline in quality was evident elsewhere as well. Recent years have seen a sharp deterioration in creditor protection. Moody's Loan Covenant Quality Indicator, which tracks the covenant protections provided to investors in the syndicated leveraged loan market, hit an all-time low in 2020. Such weak creditor protections could ultimately have a big impact on how much debt can be recovered in an event of default (see Exhibit 172).

EXHIBIT 172: **Loan Covenant Quality Indicator: Loan Covenant Quality Scores (2012-20)**



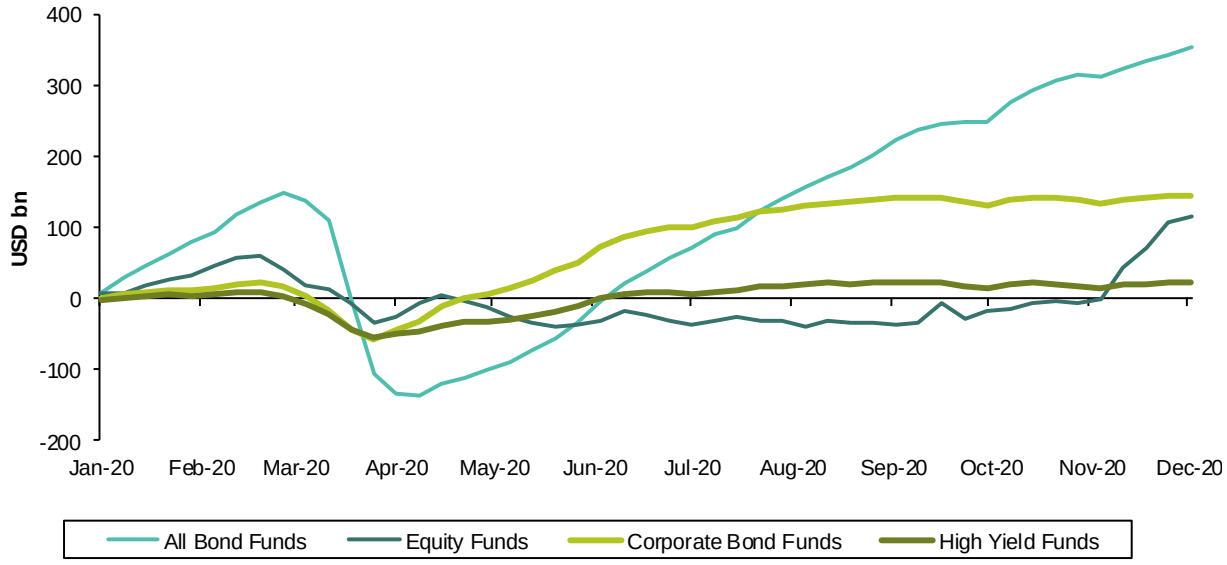
Note: Shows a two-quarter rolling average of loan covenant quality scores, measure of covenant protections provided to investors in the syndicated leveraged loan market calculated by Moody's.
A higher score denotes weaker covenant quality.

Source: Moody's Investors Service and Bernstein analysis

On the demand side, credit has been the key tactical trade in 2020. Exhibit 173 shows flows into bond, equity, and money market funds since the beginning of 2020. The persistent buying of bond funds that we have seen until mid-April 2020 has resulted in a US$490Bn total inflow into the fund asset class. The biggest beneficiaries have been dedicated corporate bond funds, which have accounted for US$177Bn, and dedicated High Yield, which represents US$70Bn of that total. These are likely an underestimate of the actual totals, as they only capture flows into those funds designated as dedicated corporate or High Yield. There is also a large category classed as mixed funds, which will also hold corporate bond assets.

Equity flows had been flat over the same period, shown by the flat equity flow line in Exhibit 173, but saw strong buying from the beginning of November 2020 into the year end.

EXHIBIT 173: **Flows into bond, equity, and money market funds, 2020**



Source: EPFR global and Bernstein analysis

What do policymakers want?

An increase in corporate debt, a decline in its quality, and a collapse in revenues in 2020 imply that on paper there are a large number of zombie companies, those that could not survive an increase in the cost of debt. However, simply using 2020 earnings might not be a true reflection. Some of these companies are, after all, going to have earnings growth once normality returns. However, others will find that their business models have evaporated and they are unable to meaningfully come back. There are three groups of companies in this regard: (1) Those that genuinely are going concerns and perhaps have issued long-maturity fixed-rate debt. They will be able to cover interest payments when the economy reopens and a burst of inflation would actually help in reducing the real value of the debt in coming years. (2) A group of companies simply won't reopen again and go bankrupt in 2021 — especially for SMEs. And, (3) a group of true "zombies," where the business model is basically broken, but which will survive as long as they don't have to refinance, as they have locked in low borrowing costs at least for a few years.

The US probably has less tolerance for allowing zombies to form, as there is an established culture of being willing to see bankruptcies. Crucially, we also know what the unemployment rate actually is in the US. We think the unemployment rate will remain very elevated, as the pandemic will have brought forward job losses that would have occurred over the next five to 10 years due to automation. Meanwhile, ongoing business failures will keep the overall unemployment rate at high levels, compared to the last decade. However, the unemployment rate will probably still fall from today's level. In Europe, by contrast, there is probably more aversion to bankruptcies; SMEs are a larger share of the economy and will be hit hard; we don't even know what the unemployment rate is in Europe because of furlough schemes. While ending furlough schemes is proving to be politically difficult, they will be scaled back at least in H1 2021 and unemployment will rise as that happens. Thus, in Europe there is likely to be more sensitivity to business failures.

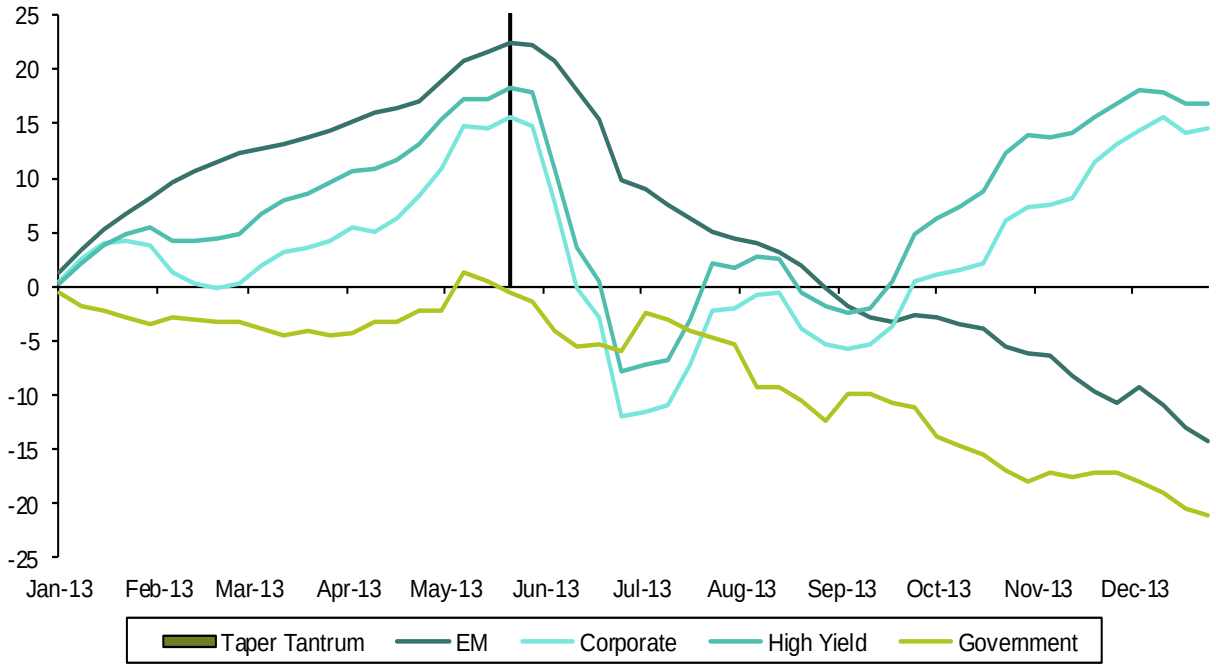
If this read on policy preferences is correct, then it is possible that in the US we see a stepping back from emergency support for credit markets in 2021. There is still considerable capacity left in the Fed's announced schemes, as only a part of the announced credit support facilities have been tapped. The Primary Market Corporate Credit Facility (PMCCF), announced in March 2020 to ensure credit to large employers, has not had to be used. The Secondary Market Corporate Credit Facility (SMCCF) has been buying credit in the secondary market since May 2020, but as spreads have declined the pace of buying has dropped from US$300Mn per day, to about US$20Mn per day by September 2020. The Fed has indicated that if further improvement in market functioning occurs, SMCCF purchases could slow further and potentially cease entirely. Though if liquidity deteriorated, then it could be increased.[41]

What might be the consequences of a move to step away from credit support and allow bankruptcies to clear? That is an event that could lead to a divergence of outcomes between corporates. One possible analogy could be the taper tantrum of 2013, but with the caveat that there is still support available should overall market liquidity deteriorate. We just think it likely that policymakers will deem it *desirable* for the economy overall to see bankruptcies rise to make sure that capital is being directed at viable businesses.

We have seen occasions in the past when central banks have indicated that extraordinary monetary support measures may start to be scaled back. The most notable case of this was following the comment made by Ben Bernanke, the then Fed chairman, at his appearance at the joint economic congressional committee meeting on May 22, 2013, when he said that the Fed was considering reducing or tapering the scale of bond purchases. Exhibit 174 shows the evolution of fund flows for bond fund asset classes in the weeks before and after Bernanke's comments. All categories of bond funds saw outflows in the weeks following the Fed comment. Corporate bond funds and high yield bond funds saw the sharpest initial sell-off, but inflows started to resume after six weeks or so, and by the end of the year they had recovered all of those initial outflows. Government bond and dedicated EM bond funds saw more gradual selling after the taper comment, but outflows continued for the rest of the year.

[41] https://www.newyorkfed.org/newsevents/speeches/2020/sin201020

EXHIBIT 174: **Bond fund flows around the 2013 taper tantrum**



Note: Cumulative weekly flows for bond fund categories around the taper announcement on May 22, 2013. The vertical line signifies the date of the announcement. Flows are in USD Bn.

Source: EPFR global and Bernstein analysis

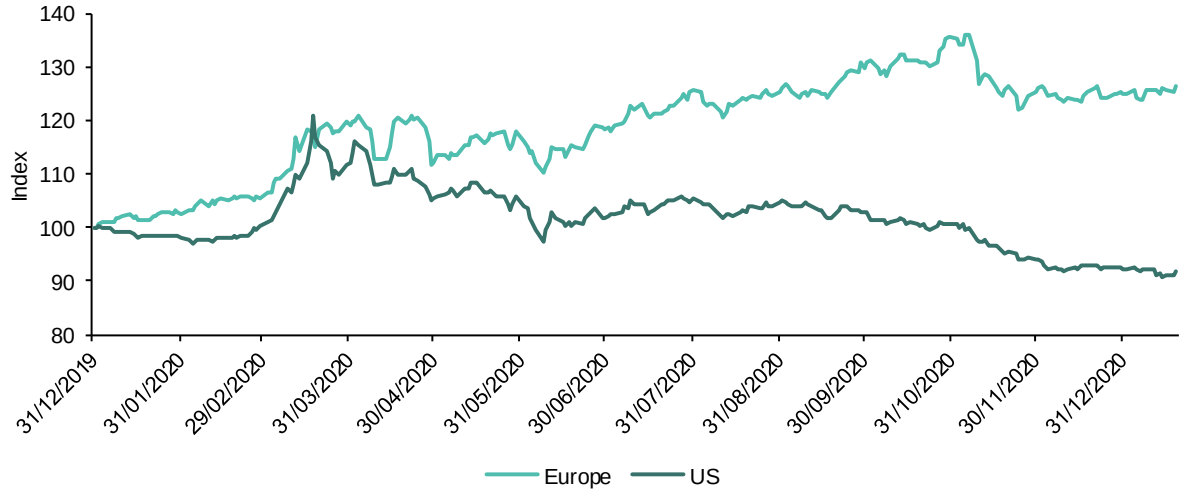
What does this mean for positioning?

A theoretical risk for investors is that as a recovery takes hold in 2021, a combination of forces could lead to the odd situation of the macro regime improving, but credit spreads widening. This could come about through a combination of policy makers stepping back from their support, from greater hard evidence of which businesses are structurally challenged post Covid-19, and also as a delayed reaction to the decline in quality of debt before the pandemic. The market is not priced for this — both in terms of credit spreads and also for the relative performance of good vs. bad balance sheet quality companies in the equity market. But how likely is this to occur? Credit spreads and CDS levels have recovered to their pre-pandemic levels and investors seem very sanguine about these risks.

Any increase in bankruptcies and defaults would likely be slow, given the available support that the Fed still has. But the long-term consequences of not allowing this to occur would likely be worse. Given this is so policy-dependent, it means that timing this transition will be very hard indeed. The support that is still available also means that at the aggregate level credit spreads are unlikely to significantly widen in the near term. Instead, what could be more likely would be a divergence within the market. This could lead in the near term to more support for companies with higher balance sheet quality, but the real winners longer term would be those that had termed out debt at long maturities and fixed rates, which would benefit if inflation rises in coming years.

Within the equity market, companies with better balance sheet quality have been doing poorly over November to December 2020 and have given up all their relative gains for the year, though the trade has fared better in Europe. Exhibit 175 shows the long-short performance of US and European companies (excluding Financials) on a combination of leverage and credit rating. In Europe, high balance sheet quality companies have outperformed low-quality companies by 24.5% in 2020, compared with an 8% underperformance for US companies. But in both regions, high balance sheet quality has been underperforming since the beginning of November 2020.

EXHIBIT 175: **Performance (January 2020 – January 2021) of Balance Sheet Quality strategies (long-short)**

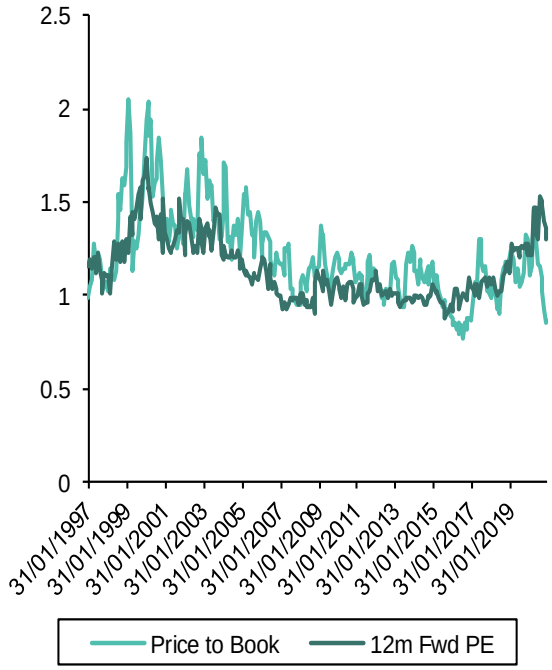


Note: Daily long-short performance of our sector-neutral balance sheet quality factor. The constituents of the MSCI US and MSCI Europe (excluding Financials) are ranked on a combination of leverage (debt-to-equity) and credit rating (Moody's credit rating) within sectors. The long portfolio is the high balance sheet quality quintile (i.e., low leverage and highly rated companies) and the short portfolio is the low balance sheet quality (high leverage and low-rated companies). Portfolios are rebalanced quarterly.

Source: MSCI, FactSet, Moody's, and Bernstein analysis

Better balance sheet quality companies trade at a slight premium, on PE, in both the US and Europe (see Exhibit 176 and Exhibit 177). At this stage, it is hard to have a strong directional tactical view of such companies. We think that risk budgets are better deployed elsewhere. We think though that there can be a role for better balance sheet quality companies emerging in 2021 if policymakers find themselves in a position to be able to talk about removing the extraordinary degree of support for credit markets.

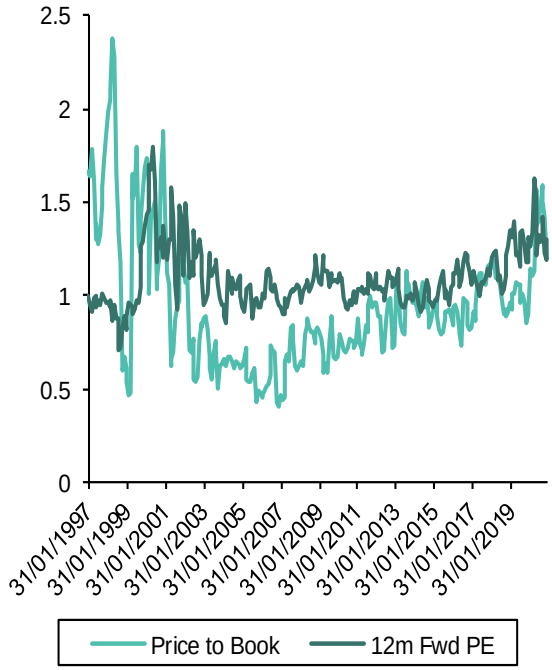
EXHIBIT 176: **Valuation of US Balance Sheet Quality factor**



Note: Median valuation of the sector-neutral high balance sheet quality quintile relative to the median valuation of the sector-neutral low balance sheet quality quintile.

Source: MSCI, FactSet, Moody's, and Bernstein analysis

EXHIBIT 177: **Valuation of European Balance Sheet Quality factor**



Note: Median valuation of the sector-neutral high balance sheet quality quintile relative to the median valuation of the sector-neutral low balance sheet quality quintile.

Source: MSCI, FactSet, Moody's, and Bernstein analysis

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- Square is covered by both the Autonomous brand and the Bernstein brand. For the research ratings and price target history please go to https://bcprod.autonomous.com/disclosure_portal/portal.html for securities covered by Autonomous brand and www.bernsteinresearch.com/go/disclosures for securities covered by the Bernstein brand.
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12-Month Bernstein Rating History as of 01/26/2021

000333.CH: O (IC) 05/28/19; **000651.CH**: O (RC) 09/30/20, M (RC) 10/08/19; **000660.KS**: O (RC) 05/18/16; **000858.CH**: O (RC) 01/06/21, M (RC) 07/14/20, O (RC) 02/18/20, M (RC) 09/02/19; **002008.CH**: O (IC) 04/18/18; **002120.CH**: M (RC) 03/06/20, O (IC) 07/30/19; **002129.CH**: O (RC) 09/24/20, U (IC) 11/26/19; **002202.CH**: O (IC) 11/26/19; **002251.CH**: U (IC) 05/28/19; **002352.CH**: O (RC) 05/12/20, M (RC) 06/06/19; **002415.CH**: O (IC) 04/20/17; **002594.CH**: U (RC) 04/16/19; **002747.CH**: O (IC) 10/27/20; **005930.KS**: O (IC) 08/10/11; **005935.KS**: O (IC) 08/10/11; **006400.KS**: O (IC) 06/11/14; **1083.HK**: M (RC) 04/01/19; **1088.HK**: U (IC) 11/26/19; **1114.HK**: M (RC) 10/16/18; **1128.HK**: O (RC) 08/22/18; **1169.HK**: M (IC) 05/28/19; **1193.HK**: M (RC) 03/02/20, U (RC) 11/05/19; **1211.HK**: M (RC) 02/17/20, U (RC) 04/16/19; **1347.HK**: M (RC) 04/03/18; **135.HK**: O (RC) 04/01/19; **1398.HK**: O (IC) 11/12/19; **1605.JP**: O (RC) 05/05/20, M (RC) 03/09/20, O (RC) 02/18/14; **168.HK**: U (RC) 11/02/16; **175.HK**: O (RC) 01/07/20; **1876.HK**: O (RC) 02/18/20, M (IC) 09/30/19; **1898.HK**: M (IC) 11/26/19; **1913.HK**: O (RC) 03/12/20, M (RC) 09/10/19; **1928.HK**: O (RC) 01/18/19; **1958.HK**: M (RC) 01/07/20; **2208.HK**: O (IC) 11/26/19; **2222.AB**: U (IC) 12/12/19; **2238.HK**: M (RC) 04/08/20, O (RC) 04/08/19; **2282.HK**: M (RC) 01/18/17; **2303.TT**: M (RC) 06/11/18; **2319.HK**: O (DC) 02/19/16; **2330.TT**: O (RC) 01/12/21, M (RC) 01/30/12; **2333.HK**: O (RC) 12/04/20, M (RC) 02/22/19; **2408.TT**: M (RC) 01/09/19; **2454.TT**: O (RC) 06/06/17; **2502.JP**: O (RC) 01/10/19; **2503.JP**: M (RC) 08/08/19; **2688.HK**: O (IC) 09/05/17; **27.HK**: O (RC) 01/18/19; **2883.HK**: M (RC) 11/30/20, O (RC) 04/29/20, U (RC) 03/09/20, M (RC) 11/07/19; **291.HK**: U (IC) 09/07/16; **300124.CH**: M (IC) 04/17/19; **300750.CH**: O (IC) 06/11/18; **3034.TT**: O (RC) 03/14/18; **3690.HK**: O (IC) 01/25/21, O (DC) 08/31/20, O (RC) 05/28/19; **3711.TT**: O (IC) 05/19/18; **384.HK**: O (RC) 01/15/18; **386.HK**: O (RC) 07/06/17; **392.HK**: M (RC) 04/01/19; **3968.HK**: M (IC) 11/12/19; **5347.TT**: M (IC) 11/17/15; **600011.CH**: M (IC) 11/26/19; **600028.CH**: M (RC) 04/03/17; **600036.CH**: M (IC) 11/12/19; **600104.CH**: M (RC) 12/04/20, O (RC) 05/19/17; **600115.CH**: O (RC) 12/10/20, M (RC) 09/11/19; **600519.CH**: O (RC) 01/06/21, U (RC) 07/14/20, M (RC) 05/07/19; **600600.CH**: U (IC) 09/07/16; **600690.CH**: M (IC) 05/28/19; **601012.CH**: O (RC) 09/24/20, U (IC) 11/26/19; **601088.CH**: U (IC) 11/26/19; **601111.CH**: O (RC) 12/10/20, M (IC) 05/17/18; **601398.CH**: O (IC) 11/12/19; **601808.CH**: U (IC) 06/01/15; **601857.CH**: U (RC) 07/06/17; **601888.CH**: O (IC) 07/09/20; **601898.CH**: M (IC) 11/26/19; **601933.CH**: O (IC) 05/28/19; **601939.CH**: M (IC) 11/12/19; **603708.CH**: M (RC) 07/22/20, O (IC) 05/28/19; **6324.JP**: M (RC) 06/05/20, O (IC) 04/17/19; **670.HK**: O (RC) 12/10/20, M (RC) 09/11/19; **6808.HK**: O (RC) 08/23/19; **6861.JP**: O (IC) 06/06/16; **688339.CH**: O (IC) 08/24/20; **6954.JP**: O (RC) 03/10/20, M (RC) 07/30/19; **700.HK**: O (IC) 01/25/21, O (DC) 08/31/20, O (IC) 01/14/19; **753.HK**: O (RC) 12/10/20, M (IC) 05/17/18; **8035.JP**: O (IC) 09/13/16; **836.HK**: M (IC) 11/26/19; **857.HK**: O (RC) 05/05/20, M (RC) 03/09/20, O (RC) 05/28/18; **880.HK**: M (RC) 09/12/19; **883.HK**: O (RC) 01/04/21, M (RC) 11/30/20, O (RC) 05/05/20, M (RC) 03/09/20, O (RC) 10/07/14; **8TRA.GR**: U (IC) 09/08/20; **902.HK**: M (IC) 11/26/19; **916.HK**: O (IC) 11/26/19; **939.HK**: M (IC) 11/12/19; **9618.HK**: O (IC) 01/25/21; **981.HK**: U (RC) 08/10/17; **9988.HK**: M (IC) 01/25/21; **AAL**: O (RC) 01/31/18; **AAL.LN**: M (IC) 01/12/21, O (DC) 02/07/20, O (IC) 09/05/12; **AAPL**: M (RC) 02/02/18; **ABBV**: O (IC) 11/09/20, M (DC) 07/14/18; **ABF.LN**: O (IC) 02/11/20, M (DC) 01/30/17; **ABI.BB**: O (RC) 03/12/18; **ABT**: O (IC) 06/26/18; **ABX.CN**: O (IC) 01/12/21; **AC.FP**: O (RC) 06/18/19; **ADBE**: O (IC) 08/17/11; **ADDYY**: M (IC) 09/19/19; **ADI**: M (RC) 03/25/19; **ADS.GR**: M (IC) 09/19/19; **ADSEZ.IN**: O (RC) 08/28/17; **ADSK**: U (RC) 05/01/20, M (RC) 01/13/20; **AF.FP**: M (RC) 08/17/20, O (RC) 01/30/20, M (RC) 08/06/19; **AGCO**: O (IC) 09/22/20, O (DC) 07/16/10; **AI.FP**: O (IC) 09/24/18; **AIR.FP**: M (RC) 06/26/20, O (RC) 02/29/16; **AIRYY**: O (RC) 12/10/20, M (IC) 05/17/18; **AKZA.NA**: O (IC) 09/24/18; **ALKEM.IN**: M (IC) 07/21/20; **ALNY**: O (IC) 07/26/17; **ALXN**: M (IC) 11/19/20, O (DC) 09/18/15; **AMCX**: U (RC) 06/21/18; **AMD**: M (RC) 09/20/16; **AMGN**: M (RC) 10/09/20, O (IC) 10/11/19; **AML.LN**: O (IC) 09/08/20, O (DC) 01/13/20; **AMP.IM**: M (IC) 03/10/20, M (DC) 01/28/20, M (IC) 11/12/19; **AMZN**: O (RC) 09/22/20, M (IC) 01/09/20; **ANTM**: O (IC) 06/15/16; **ANTO.LN**: O (IC) 01/12/21, O (DC) 02/07/20, O (RC) 05/21/19; **APA**: O (IC) 05/13/11; **APD**: O (RC) 04/15/20, M (RC) 07/17/19; **ARBP.IN**: M (IC) 07/21/20; **ARMK**: M (RC) 06/10/20, O (IC) 09/17/18; **ASAN**: U (IC) 10/08/20; **ASC.LN**: M (RC) 05/05/20, U (IC) 02/11/20, O (DC) 01/30/17; **ASML**: M (RC) 07/29/20, O (RC) 03/12/20, M (IC) 06/19/18; **ASML.NA**: M (RC) 07/29/20, O (RC) 03/12/20, M (IC) 06/19/18; **ASX**: O (IC) 05/19/18; **ATUS**: O (RC) 10/05/20, M (RC) 05/05/20, O (IC) 10/15/19; **ATVI**: U (RC) 10/02/19; **AUBANK.IN**: M (RC) 05/05/20, O (IC) 07/11/17; **AVGO**: O (IC) 10/04/16; **AXSB.IN**: M (RC) 05/23/18; **BA**: U (RC) 01/04/21, M (RC) 06/26/20, O (RC) 06/12/12; **BA/.LN**: M (RC)

02/25/19; **BABA**: M (IC) 01/25/21, O (DC) 08/31/20, O (IC) 01/14/19; **BAF.IN**: O (RC) 01/21/21, M (RC) 10/08/20, U (RC) 03/27/20, O (IC) 10/11/18; **BANDHAN.IN**: O (IC) 09/19/18; **BAS.GR**: O (RC) 01/12/21, M (IC) 09/24/18; **BAX**: O (DC) 04/10/15; **BAYN.GR**: O (DC) 06/29/18; **BBCA.IJ**: M (IC) 05/22/12; **BBL**: O (IC) 01/12/21, M (DC) 02/07/20, M (RC) 01/22/18; **BBL.TB**: M (RC) 04/14/20, O (RC) 08/27/19; **BBRI.IJ**: O (IC) 09/03/13; **BBY**: U (IC) 02/06/17; **BDO.PM**: O (IC) 09/21/15; **BEI.GR**: O (IC) 10/12/20, U (DC) 01/13/20; **BEST**: U (RC) 08/20/19; **BHARTI.IN**: O (IC) 10/22/20, O (DC) 07/25/20, O (RC) 08/17/17; **BHE.IN**: O (IC) 06/23/16; **BHEL.IN**: M (RC) 01/03/17; **BHP**: O (IC) 01/12/21, M (DC) 02/07/20, M (RC) 01/22/18; **BHP.AU**: O (IC) 01/12/21, M (DC) 02/07/20, M (RC) 01/22/18; **BHP.LN**: O (IC) 01/12/21, M (DC) 02/07/20, M (RC) 01/22/18; **BIDU**: O (DC) 08/31/20, O (RC) 11/08/19; **BIIB**: M (RC) 06/09/20, O (RC) 10/29/19; **BILI**: O (IC) 01/25/21; **BIOS.IN**: M (IC) 07/21/20; **BJAUT.IN**: O (RC) 01/11/21, M (IC) 09/25/19; **BKNG**: U (IC) 11/30/20; **BLDP**: O (IC) 08/24/20; **BLUE**: O (RC) 11/14/18; **BMRI.IJ**: O (IC) 05/22/12; **BMRN**: M (IC) 07/26/17; **BMW.GR**: O (IC) 09/08/20, M (DC) 02/28/20, M (IC) 03/13/17; **BMY**: M (IC) 11/09/20, M (DC) 07/14/18; **BN.FP**: U (IC) 10/12/20, O (DC) 01/13/20; **BOO.LN**: O (RC) 05/11/20, M (IC) 02/11/20; **BOOT.IN**: U (IC) 07/21/20; **BP**: O (RC) 09/10/15; **BP/.LN**: O (RC) 09/10/15; **BPI.PM**: O (IC) 10/18/17; **BRBY.LN**: M (RC) 03/12/20, U (RC) 08/06/19; **BSX**: O (IC) 06/26/18; **BUD**: O (RC) 03/12/18; **BYND**: U (RC) 10/13/20, M (RC) 01/15/20; **CAG**: M (RC) 03/18/20, U (RC) 11/14/18; **CARLB.DC**: O (RC) 04/15/20, M (RC) 09/10/19; **CASY**: M (IC) 03/10/20; **CAT**: M (IC) 09/22/20, O (DC) 07/16/10; **CCRI.IN**: M (RC) 10/03/19; **CDR.PW**: M (IC) 07/07/20; **CEA**: O (RC) 12/10/20, M (RC) 09/11/19; **CEO**: O (RC) 01/04/21, M (RC) 11/30/20, O (RC) 05/05/20, M (RC) 03/09/20, O (RC) 10/07/14; **CF**: M (RC) 03/02/20, U (RC) 12/09/19; **CFR.SW**: M (RC) 11/11/20, O (IC) 04/16/19; **CGNX**: M (RC) 04/30/19; **CHRW**: M (RC) 12/06/13; **CHTR**: O (IC) 10/15/19; **CI**: M (RC) 05/04/20, O (RC) 08/06/19; **CIMB.MK**: M (RC) 07/20/20, O (RC) 05/03/19; **CIPLA.IN**: O (IC) 07/21/20; **CL**: U (IC) 01/19/21, M (DC) 03/30/20, M (IC) 05/07/07; **CLDR**: M (RC) 06/06/19; **CLPBY**: O (IC) 05/13/20; **CLX**: M (IC) 01/19/21, M (DC) 03/30/20, M (RC) 07/18/11; **CMCSA**: O (RC) 06/30/20, M (IC) 10/15/19; **CMG**: O (IC) 09/11/13; **CMI**: O (IC) 09/22/20, O (DC) 07/16/10; **CNA.LN**: M (RC) 11/27/17; **CNC**: O (RC) 11/14/16; **CNE.LN**: M (RC) 01/29/13; **CNI**: O (RC) 01/11/21, M (IC) 05/10/11; **CNR.CN**: O (RC) 01/11/21, M (IC) 07/22/14; **COH.AU**: O (IC) 03/10/20, O (DC) 01/28/20, O (IC) 11/12/19; **COLOB.DC**: O (IC) 03/10/20, O (DC) 01/28/20, O (IC) 11/12/19; **COP**: O (RC) 06/08/18; **COST**: U (RC) 09/18/19; **CP**: M (RC) 03/12/19; **CP.CN**: M (RC) 03/12/19; **CPB**: U (RC) 06/11/20, M (RC) 03/18/20, U (RC) 03/20/17; **CPG.LN**: O (RC) 04/16/20, U (RC) 04/08/19; **CPR.IM**: O (RC) 06/08/20, M (RC) 09/10/19; **CPRI**: M (RC) 11/12/18; **CQP**: M (RC) 10/08/19; **CRDA.LN**: M (RC) 09/24/18; **CRM**: M (RC) 05/03/18; **CROMPTON.IN**: O (IC) 06/23/16; **CSX**: O (RC) 10/12/20, M (RC) 10/03/12; **CTEC.LN**: U (IC) 03/10/20, U (DC) 01/28/20, U (IC) 11/12/19; **CTVA**: O (RC) 01/23/20; **CTXS**: O (IC) 08/17/11; **CVS**: O (IC) 03/12/19; **CXO**: O (RC) 11/01/18; **CZR**: M (DC) 07/21/20, M (IC) 11/14/18; **DAI.GR**: O (IC) 09/08/20, M (DC) 01/13/20; **DAL**: O (RC) 02/06/17; **DBS.SP**: M (RC) 09/17/19; **DBX**: U (IC) 08/06/19; **DE**: M (IC) 09/22/20, O (DC) 07/16/10; **DELL**: M (IC) 02/15/19; **DEMANT.DC**: U (IC) 03/10/20, U (DC) 01/28/20, U (IC) 11/12/19; **DEO**: O (RC) 04/15/20, M (RC) 09/10/19; **DG**: M (RC) 09/10/19; **DGE.LN**: O (RC) 04/15/20, M (RC) 09/10/19; **DIS**: M (RC) 08/20/15; **DISCA**: U (RC) 06/06/16; **DISH**: M (RC) 03/06/20, U (IC) 10/15/19; **DLTR**: O (RC) 12/13/18; **DOW**: M (RC) 11/13/20, O (IC) 03/26/19; **DPW.GR**: O (RC) 08/09/20, M (IC) 06/26/17; **DPZ**: M (IC) 03/23/17; **DRI**: O (RC) 04/20/18; **DRRD.IN**: O (IC) 07/21/20; **DSM.NA**: U (RC) 01/12/21, M (RC) 03/30/20, U (RC) 11/27/19; **DSV.DC**: M (RC) 03/26/20, U (IC) 09/10/19; **DVA**: M (IC) 03/10/20, M (DC) 01/28/20, M (IC) 11/12/19; **DVN**: M (RC) 07/05/17; **E**: U (RC) 01/04/21, O (RC) 04/07/20, M (RC) 03/09/20, O (RC) 06/14/13; **EA**: O (IC) 01/17/18; **EAT**: M (IC) 09/11/13; **EDF.FP**: O (RC) 12/03/20, M (IC) 05/01/19; **EDP.PL**: O (RC) 09/04/19; **EDPR.PL**: O (IC) 05/01/19; **EIM.IN**: M (RC) 10/28/20, O (RC) 06/15/20, M (IC) 03/21/19; **EKTAB.SS**: M (IC) 11/23/20; **EL**: O (IC) 01/19/21, O (DC) 03/30/20, O (RC) 04/07/14; **EL.FP**: O (IC) 04/16/19; **ELE.SM**: M (IC) 07/23/18; **ELIOR.FP**: M (RC) 09/23/20, U (RC) 06/10/20, M (IC) 09/17/18; **EMBRACB.SS**: O (IC) 07/07/20; **ENEL.IM**: O (IC) 11/15/17; **ENGI.FP**: O (IC) 10/15/18; **ENI.IM**: U (RC) 01/04/21, O (RC) 04/07/20, M (RC) 03/09/20, O (RC) 06/14/13; **EOAN.GR**: O (IC) 05/08/14; **EOG**: O (RC) 10/13/14; **EPD**: O (IC) 05/10/16; **EQNR**: M (RC) 01/04/21, O (RC) 04/07/20, M (RC) 03/09/20, O (RC) 07/02/19; **EQNR.NO**: M (RC) 01/04/21, O (RC) 04/07/20, M (RC) 03/09/20, O (RC) 07/02/19; **ET**: O (RC) 05/10/17; **EVK.GR**: O (IC) 09/19/16; **EW**: M (IC) 06/26/18; **EXPE**: M (IC) 11/30/20; **EZJ.LN**: O (RC) 03/10/20, M (RC) 04/08/19; **FB**: O (IC) 01/09/20; **FCA.IM**: U (IC) 09/08/20, M (DC) 02/28/20, M (IC) 03/13/17; **FDX**: O (RC) 08/10/20, M (RC) 10/09/19; **FIS**: O (DC) 09/08/20, O (IC) 08/18/20; **FISV**: M (DC) 09/08/20, M (IC) 08/18/20; **FMC**: M (IC) 11/19/20; **FME.GR**: M (IC) 03/10/20, M (DC) 01/28/20, M (IC) 11/12/19; **FMS**: M (IC) 03/10/20, M (DC) 01/28/20, M (IC) 11/12/19; **FORTUM.FH**: U (IC) 06/15/20; **FP.FP**: M (RC) 01/04/21, O (RC) 03/25/20, M (RC) 03/09/20, O (RC) 02/09/18; **FRE.GR**: O (RC) 03/24/20, M (IC) 03/10/20, M (DC) 01/28/20, M (IC) 11/12/19; **FSNUY**: O (RC) 03/24/20, M (IC) 03/10/20, M (DC) 01/28/20, M (IC) 11/12/19; **FTCH**: M (RC) 09/08/20, U (RC) 11/13/19; **GALP.PL**: M (RC) 01/04/21, O (RC) 02/23/17; **GD**: M (RC) 05/09/17; **GENS.SP**: M (RC) 06/09/20, O (RC) 09/03/18; **GILD**: M (RC) 02/06/20, O (IC) 10/11/19; **GIS**: U (RC) 06/11/20, M (RC) 03/18/20, U (RC) 03/20/17; **GIVN.SW**: U (RC) 01/08/18; **GLEN.LN**: M (IC) 01/12/21, O (DC) 02/07/20, O (RC) 02/13/13; **GLPG.NA**: M (RC) 10/18/19; **GMAB.DC**: O (IC) 11/15/17; **GN.DC**: M (IC) 03/10/20, M (DC) 01/28/20, M (IC) 11/12/19; **GOLD**: O (IC) 01/12/21; **GOOGL**: O (IC) 01/09/20; **GPN**: O (DC) 09/08/20, O (IC) 08/18/20; **GPPV.IN**: O (RC) 07/04/18; **HAIN**: O (RC) 05/19/20, M (RC) 03/01/19; **HAVL.IN**: M (RC) 10/03/19; **HCA**: M (IC) 06/15/16; **HCLT.IN**: M (IC) 06/26/19; **HD**: M (IC) 02/06/17; **HDFCB.IN**: O (RC) 10/08/20, M (RC) 07/14/20, U (RC) 03/19/20, M (RC) 09/08/19; **HEIA.NA**: O (RC) 10/21/16; **HEIO.NA**: O (RC) 10/21/16; **HEN.GR**: U (IC) 10/12/20, M (DC) 01/13/20; **HEN3.GR**: U (IC) 10/12/20, M (DC) 01/13/20; **HES**: O (IC) 09/28/18; **HII**: M (RC) 05/08/15; **HLT**: O (IC) 09/10/19; **HMB.SS**: M (RC) 11/18/20, U (IC) 02/11/20, U (DC) 01/30/17; **HMCL.IN**: M (RC) 01/09/20; **HNP**: M (IC) 11/26/19; **HO.FP**: M (IC) 01/07/19; **HOLI**: O (IC) 09/08/15; **HPE**: M (RC) 08/21/18; **HPQ**: M (RC) 09/09/19; **HSY**: M (RC) 09/12/19; **HUM**: M (IC) 10/01/20, O (DC) 01/17/13; **IAG.LN**: O (RC) 11/06/19; **IBE.SM**: O (RC) 09/10/18; **IBM**: M (RC) 03/16/11; **ICICIBC.IN**: O (RC) 07/14/20, M (RC) 02/04/19; **IDEA.IN**: U (DC) 07/25/20, U (RC) 10/29/19; **IFF**: O (IC) 09/19/16; **IFX.GR**: O (IC) 06/19/19; **IG.IM**: M (IC) 05/01/19; **IHG.LN**: M (RC) 06/01/20, O (IC) 05/02/17; **IIB.IN**: M (RC) 09/08/19; **INFO.IN**: M (IC) 06/26/19; **INFOE.IN**: O (RC) 04/15/20, M (IC) 06/26/19; **INFY**: M (IC) 09/04/20, U (DC) 01/29/14; **INTC**: U (RC) 07/24/20, M (RC) 03/26/20, U (RC) 06/26/18; **IONS**: O (RC) 09/09/19; **IPGP**: O (IC) 04/18/18; **IQ**: M (DC) 08/31/20, M (RC) 09/12/19; **ISRG**: O (IC) 06/26/18; **ITV.LN**: U (RC) 11/16/20, M (IC) 07/07/20, O (DC) 02/24/16; **ITX.SM**: O (RC) 10/19/20, M (IC) 02/11/20, O (DC) 01/30/17; **J**: O (IC) 09/22/20; **JAZZ**: O (RC) 03/11/20, M (IC) 10/11/19; **JBHT**: M (RC) 01/06/20; **JD**: O (IC) 01/25/21, O (DC) 08/31/20, O (RC) 03/17/20, M (IC) 01/14/19; **JMAT.LN**: O (IC) 09/24/18; **JNJ**: O (RC) 10/11/19; **K**: U (RC) 06/11/20, M (RC) 03/18/20, U (RC) 03/20/17; **KBANK.TB**: M (RC) 01/08/21, O (RC) 08/27/19; **KDP**: O (IC) 01/19/21; **KER.FP**: M (RC) 01/08/20; **KGF.LN**: M (DC) 01/30/17; **KHC**: M (RC) 02/25/19; **KKC.IN**: M (IC) 06/23/16; **KMB**: M (IC) 01/19/21, M (DC) 03/30/20, M (IC) 05/07/07; **KMB.IN**: O (IC) 11/16/16; **KMI**: O (RC) 06/26/18; **KNIN.SW**: M (RC) 10/22/20, O (RC) 06/18/20, M (RC) 10/28/19; **KO**: O (IC) 01/19/21, O (DC) 03/30/20, O (IC) 11/16/10; **KOS**: M (RC) 02/28/20, M (RC) 02/26/20, O (RC) 01/04/19; **KR**: O (RC) 05/20/19; **LB**: M (RC) 03/01/19; **LGF/B**: M (RC) 02/21/18; **LHA.GR**: M (RC) 06/05/20, O (RC) 10/30/19; **LHX**: O (IC) 12/09/19; **LIN**: M (RC) 04/15/20, U (IC) 11/05/18; **LIN.GR**: M (RC) 04/15/20, U (IC) 11/05/18; **LISN.SW**: O (IC) 10/12/20, M (DC) 01/13/20; **LISP.SW**: O (IC) 10/12/20, M (DC) 01/13/20; **LLY**: M (IC) 11/09/20, O (DC) 07/14/18; **LMT**: M (RC) 12/05/14; **LNG**: O (RC) 03/26/18; **LOW**: O (RC) 01/22/18; **LPC.IN**: O (IC) 07/21/20; **LT.IN**: O (RC) 07/25/16; **LTTS.IN**: M (RC) 03/04/20, O (IC) 06/26/19; **LULU**: M (IC) 09/11/17; **LUN.DC**: M (RC) 10/24/18; **LUV**: O (RC) 12/07/20, M (RC) 10/31/19; **LVS**: O (IC) 11/14/18; **LYB**: M (RC) 11/13/20, O (IC) 09/10/15; **LYFT**: M (IC) 01/09/20; **MA**: O (DC) 09/08/20, O (IC) 03/27/18; **MAR**: M (IC) 09/10/19; **MBT.PM**: M (IC) 10/18/17; **MC.FP**: O (RC) 08/06/19; **MCD**: O (RC) 04/18/17; **MDLZ**: O (IC) 08/02/06; **MDT**: O (RC) 10/08/20, M (IC) 06/26/18; **MEOH**: U (RC) 11/30/20, M (RC) 04/21/20, U (IC) 05/10/17; **MGGT.LN**: O (RC) 11/23/20, M (RC) 03/23/15; **MGM**: M (IC) 11/14/18; **MKC**: M (RC) 09/15/16; **MKS.LN**: U (DC) 01/30/17; **MLCO**: O (IC) 03/23/15; **MM.IN**: O (RC) 06/15/20, M (IC) 03/21/19; **MNST**: M (IC) 01/19/21; **MO**: O (IC) 01/19/21, M (DC) 04/09/20, M (IC) 10/15/18; **MONC.IM**: O (RC) 08/06/19; **MOS**: O (RC) 10/13/15; **MRK**: O (IC) 11/09/20, O (DC) 07/14/18; **MRK.GR**: M (RC) 04/09/19; **MSFT**: O (IC) 08/17/11; **MSIL.IN**: O (IC) 03/21/19; **MTCL.IN**: M

(IC) 06/26/19; **MTX.GR**: M (RC) 01/11/17; **MU**: O (RC) 01/09/19; **MX.CN**: U (RC) 11/30/20, M (RC) 04/21/20, U (IC) 05/10/17; **NAS.NO**: U (RC) 04/14/20, M (RC) 10/30/19; **NEM**: O (IC) 01/12/21; **NESN.SW**: O (IC) 10/12/20, M (DC) 01/13/20; **NFLX**: O (IC) 03/16/17; **NG/.LN**: O (RC) 06/14/19; **NKE**: O (IC) 09/11/17; **NLSN**: O (RC) 10/14/14; **NOC**: O (RC) 03/30/20, M (RC) 02/17/15; **NOVOB.DC**: O (RC) 07/02/18; **NOW**: O (IC) 05/23/17; **NSC**: M (RC) 10/03/12; **NTES**: M (DC) 08/31/20, M (IC) 01/14/19; **NTGY.SM**: M (RC) 12/11/19; **NTR**: O (RC) 03/02/20, M (RC) 01/15/20; **NTR.CN**: O (RC) 03/02/20, M (RC) 01/15/20; **NVDA**: O (RC) 02/18/20, M (RC) 02/11/19; **NXPI**: O (RC) 07/27/18; **NXT.LN**: M (IC) 02/11/20, U (DC) 01/30/17; **NZYMB.DC**: O (RC) 01/05/17; **OCBC.SP**: O (IC) 05/22/12; **OKE**: M (RC) 01/08/19; **ONGC.IN**: M (RC) 07/06/17; **OR.FP**: O (IC) 10/12/20, U (DC) 01/13/20; **ORCL**: O (RC) 05/05/14; **ORK.NO**: M (IC) 10/12/20, O (DC) 01/13/20; **ORSTED.DC**: M (RC) 09/03/19; **OSH.AU**: O (RC) 05/05/20, M (RC) 02/03/20, O (IC) 06/29/09; **OSK**: M (IC) 09/22/20; **OXY**: U (DC) 08/02/10; **PAA**: M (RC) 06/18/18; **PAGP**: M (RC) 06/18/18; **PAH3.GR**: M (RC) 01/05/21, U (IC) 09/08/20, O (RC) 04/09/14; **PBK.MK**: U (RC) 07/20/20, M (RC) 08/14/19; **PCAR**: M (IC) 09/22/20; **PDD**: O (IC) 01/25/21, O (DC) 08/31/20, O (IC) 06/08/20; **PEP**: U (IC) 01/19/21, O (DC) 03/30/20, O (IC) 11/16/10; **PFE**: M (IC) 11/09/20, O (DC) 07/14/18; **PG**: M (IC) 01/19/21, O (DC) 03/30/20, O (RC) 08/08/11; **PHG**: O (IC) 03/10/20, O (DC) 01/28/20, O (IC) 11/12/19; **PHIA.NA**: O (IC) 03/10/20, O (DC) 01/28/20, O (IC) 11/12/19; **PINS**: M (IC) 01/09/20; **PM**: M (IC) 01/19/21, O (DC) 04/09/20, O (IC) 10/15/18; **PMO.LN**: M (RC) 07/05/17; **PTCT**: O (IC) 04/10/19; **PTON**: O (IC) 10/23/19; **PTR**: O (RC) 05/05/20, M (RC) 03/09/20, O (RC) 12/01/16; **PTTEP.TB**: M (RC) 05/05/20, U (RC) 03/09/20, M (RC) 11/07/12; **PUB.FP**: M (IC) 07/07/20, M (DC) 02/24/16; **PVH**: O (RC) 09/03/19; **PVRL.IN**: O (IC) 06/26/19; **PWR**: O (IC) 09/22/20; **PXD**: O (IC) 08/16/16; **PYPL**: O (DC) 09/08/20, O (RC) 01/07/20; **QCOM**: O (RC) 08/03/20, M (RC) 06/30/16; **QS**: U (IC) 11/30/20; **QSR**: O (IC) 04/04/19; **QSR.CN**: O (IC) 04/04/19; **QURE**: O (IC) 09/24/19; **RACE.IM**: U (IC) 09/08/20, M (DC) 02/28/20, M (RC) 01/15/19; **RARE**: M (IC) 07/26/17; **RB/.LN**: U (IC) 10/12/20, O (DC) 01/13/20; **RCO.FP**: M (RC) 04/15/20, O (RC) 02/03/20, M (RC) 12/18/18; **RDS/A**: O (RC) 12/03/20, M (RC) 03/09/20, O (RC) 09/30/14; **RDS/B**: O (RC) 12/03/20, M (RC) 03/09/20, O (RC) 09/30/14; **RDSA.LN**: O (RC) 12/03/20, M (RC) 03/09/20, O (RC) 09/30/14; **RDSA.NA**: O (RC) 12/03/20, M (RC) 03/09/20, O (RC) 09/30/14; **RDSB.LN**: O (RC) 12/03/20, M (RC) 03/09/20, O (RC) 09/30/14; **RDSB.NA**: O (RC) 12/03/20, M (RC) 03/09/20, O (RC) 09/30/14; **REGN**: O (RC) 02/25/20, M (IC) 10/11/19; **REL.LN**: M (IC) 07/07/20, M (DC) 02/24/16; **REN.NA**: M (IC) 07/07/20, M (DC) 02/24/16; **REP.SM**: O (RC) 04/07/20, M (RC) 03/09/20, O (RC) 07/10/18; **RI.FP**: O (RC) 07/29/20, M (RC) 09/10/19; **RIGD.LI**: O (RC) 01/21/20; **RIL.IN**: O (RC) 01/21/20; **RIO**: M (IC) 01/12/21, O (DC) 02/07/20, O (IC) 09/05/12; **RIO.AU**: M (IC) 01/12/21; **RIO.LN**: M (IC) 01/12/21, O (DC) 02/07/20, O (IC) 09/05/12; **RMG.LN**: M (RC) 05/18/20, U (RC) 02/07/20, M (RC) 11/29/19; **RMS.FP**: M (RC) 12/11/20, O (RC) 03/12/20, M (IC) 04/16/19; **RNO.FP**: O (IC) 09/08/20, M (DC) 02/28/20, M (RC) 05/25/17; **ROG.SW**: O (IC) 07/13/20, M (DC) 07/14/18; **ROST**: O (IC) 09/11/17; **RR/.LN**: U (RC) 12/08/15; **RTX**: M (IC) 04/07/20; **RWE.GR**: O (RC) 01/09/18; **RYA.ID**: O (RC) 03/10/20, M (RC) 01/08/18; **RYAAY**: O (RC) 03/10/20, M (RC) 01/08/18; **SABR**: O (RC) 05/11/20, M (RC) 02/14/19; **SAF.FP**: M (RC) 04/01/20, O (RC) 01/04/18; **SAN.FP**: O (IC) 09/03/19; **SAP**: O (RC) 03/13/12; **SAP.GR**: O (RC) 03/13/12; **SBICARD.IN**: O (IC) 09/14/20; **SBIN.IN**: O (IC) 11/16/16; **SBUX**: M (RC) 01/29/18; **SCB.TB**: M (RC) 07/06/18; **SE**: M (DC) 02/27/17; **SFM**: O (RC) 02/21/20, M (RC) 06/24/19; **SHL.GR**: O (IC) 03/10/20, O (DC) 01/28/20, O (IC) 11/12/19; **SJM**: U (RC) 06/11/20, M (RC) 03/18/20, U (RC) 03/20/17; **SMPL**: O (IC) 08/12/19; **SMSN.LI**: O (IC) 08/10/11; **SN/.LN**: O (RC) 12/18/20, M (RC) 03/30/20, O (IC) 03/10/20, O (DC) 01/28/20, O (IC) 11/12/19; **SNAP**: O (IC) 01/09/20; **SNN**: O (RC) 12/18/20, M (RC) 03/30/20, O (IC) 03/10/20, O (DC) 01/28/20, O (IC) 11/12/19; **SNOW**: M (IC) 10/01/20; **SNP**: O (RC) 07/06/17; **SNY**: O (IC) 09/03/19; **SOON.SW**: U (IC) 03/10/20, U (DC) 01/28/20, U (IC) 11/12/19; **SPLK**: M (RC) 11/06/18; **SPOT**: U (RC) 07/06/20, M (RC) 03/23/20, U (IC) 01/08/20; **SPR**: M (RC) 07/08/20, O (RC) 01/05/16; **SQ**: M (DC) 09/08/20, M (IC) 04/02/19; **SRG.IM**: M (IC) 05/01/19; **SRPT**: O (IC) 10/11/18; **SSE.LN**: O (RC) 01/09/19; **STMN.SW**: M (IC) 03/10/20, M (DC) 01/28/20, M (IC) 11/12/19; **STO.AU**: O (RC) 05/05/20, U (RC) 03/09/20, M (RC) 07/06/17; **STX**: M (IC) 07/15/20; **SUNP.IN**: O (IC) 07/21/20; **SVT.LN**: M (RC) 01/08/20; **SW.FP**: M (RC) 03/05/20, U (RC) 01/18/19; **SY1.GR**: M (RC) 08/10/17; **SYK**: M (IC) 06/26/18; **T**: M (IC) 10/15/19; **TCOM**: M (DC) 08/31/20, M (RC) 01/21/20; **TCS.IN**: O (IC) 06/26/19; **TDC**: M (RC) 03/05/18; **TECHM.IN**: O (RC) 02/04/20, M (IC) 06/26/19; **TEVA**: M (IC) 10/11/19; **TGT**: M (RC) 05/02/19; **THBEV.SP**: O (RC) 01/08/21, M (RC) 08/31/18; **TJX**: O (IC) 09/11/17; **TLW.LN**: M (RC) 07/05/17; **TMUS**: O (IC) 10/15/19; **TMX.IN**: M (RC) 07/02/18; **TOT**: M (RC) 01/04/21, O (RC) 03/25/20, M (RC) 03/09/20, O (RC) 02/09/18; **TPR**: O (IC) 09/11/17; **TRIP**: O (IC) 11/30/20; **TRMB**: O (IC) 09/22/20; **TRN.IM**: O (IC) 05/01/19; **TSCO**: O (IC) 02/26/18; **TSLA**: U (RC) 07/28/20, M (IC) 03/08/17; **TSM**: O (RC) 01/12/21, M (RC) 01/30/12; **TSN**: O (RC) 06/04/20, M (RC) 04/24/20, O (IC) 05/10/18; **TTWO**: O (IC) 10/09/18; **TUI.LN**: U (RC) 12/16/20, M (RC) 12/02/19; **TUI1.GR**: U (RC) 12/16/20, M (RC) 12/02/19; **TVSL.IN**: M (IC) 09/25/19; **TWE.AU**: O (RC) 11/30/20, M (RC) 08/20/20, O (IC) 10/10/18; **TWTR**: M (RC) 04/08/20, U (IC) 01/09/20; **TXN**: M (RC) 03/25/19; **UAA**: M (RC) 09/03/19; **UAL**: O (RC) 01/31/18; **UBER**: O (IC) 01/09/20; **UCB.BB**: O (RC) 10/18/19; **UG.FP**: U (IC) 09/08/20, O (DC) 02/28/20, O (IC) 03/13/17; **UHR.SW**: M (IC) 04/16/19; **ULVR.LN**: U (IC) 10/12/20, O (DC) 01/13/20; **UMC**: M (RC) 06/11/18; **UMI.BB**: U (IC) 09/24/18; **UN01.GR**: U (RC) 04/09/19; **UNA.NA**: U (IC) 10/12/20, O (DC) 01/13/20; **UNH**: O (IC) 06/15/16; **UNP**: O (RC) 01/11/21, M (RC) 06/17/19; **UOB.SP**: M (IC) 05/22/12; **UPS**: O (IC) 05/10/11; **URI**: M (IC) 09/22/20; **UU/.LN**: M (RC) 07/03/17; **V**: O (DC) 09/08/20, O (IC) 03/27/18; **VALE**: M (IC) 01/12/21, O (DC) 02/07/20, O (RC) 01/25/17; **VALE3.BZ**: M (IC) 01/12/21, O (DC) 02/07/20, O (RC) 01/25/17; **VFC**: M (IC) 09/11/17; **VIAC**: U (IC) 01/29/20; **VIV.FP**: O (IC) 07/07/20, M (DC) 02/24/16; **VMW**: O (RC) 02/06/20, M (RC) 02/10/15; **VOLT.IN**: O (RC) 06/29/17; **VOLVB.SS**: O (IC) 09/08/20; **VOW.GR**: M (RC) 12/15/20, U (IC) 09/08/20, O (DC) 02/28/20, O (RC) 10/12/17; **VRTX**: O (IC) 11/19/20, M (DC) 09/18/15; **VTRS**: M (IC) 12/14/20; **VZ**: M (IC) 10/15/19; **WDAY**: O (RC) 10/17/18; **WDC**: O (IC) 07/15/20; **WEN**: M (IC) 09/11/13; **WIT**: U (IC) 09/11/20; **WIZZ.LN**: O (IC) 09/28/20; **WKL.NA**: O (IC) 07/07/20, O (DC) 02/24/16; **WLK**: M (RC) 03/19/20, O (IC) 06/20/18; **WLKP**: M (IC) 06/20/18; **WMB**: O (RC) 03/12/20, M (RC) 08/05/19; **WMG**: M (IC) 06/23/20; **WMT**: O (RC) 05/02/19; **WORK**: M (IC) 08/14/19; **WPL.AU**: O (RC) 05/05/20, M (RC) 03/09/20, O (RC) 02/20/18; **WPP**: U (IC) 07/07/20; **WPP.LN**: U (IC) 07/07/20, O (DC) 02/24/16; **WPRO.IN**: U (IC) 06/26/19; **WTB.LN**: U (RC) 01/17/20; **WYNN**: O (IC) 11/14/18; **YES.IN**: U (RC) 03/09/20, M (RC) 07/18/19; **YUM**: O (RC) 12/16/13; **YUMC**: M (IC) 11/03/16; **ZAL.GR**: O (IC) 02/11/20, O (DC) 01/30/17; **ZBH**: M (RC) 06/11/19; **ZM**: O (IC) 04/29/19; **ZTO**: O (IC) 05/16/18;

Rating Guide: O - Outperform, M - Market-Perform, U - Underperform, N - Not Rated

Rating Actions: IC - Initiated Coverage, DC - Dropped Coverage, RC - Rating Change

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