US equity valuations are at historically high levels, and there is increased focus on whether this is a cause for concern. In this Analyst, we take a fresh look at equity valuations and returns from a macro perspective. We find that unusually low bond yields, low inflation and a rapidly improving labor market are conditions that should be associated with unusually high valuations. As yields rise and labor market improvement eases, however, the macro support for valuations is likely to erode.

Three main points illustrate the importance of macro drivers to thinking about equity valuations and returns. First, treating equities as a perpetual bond that delivers an “earnings yield” (the inverse of the price/earnings ratio) provides a pretty good approximation for US equity returns. Second, what matters most is not whether equity valuations are high but whether they are higher than they “should” be given the macro backdrop. Third, an accurate forward view of three macro drivers—bond yields, the unemployment rate and inflation—would generate much better return predictions for US equities at all horizons.

Our macro model of equity valuations implies that valuations are roughly fair given today’s macro environment. This is a different story to the last time earnings yields (equity valuations) were at or below (above) current levels in the late 1990s. The macro support for equity valuations is set to weaken going forward, however. We are forecasting that bond yields will rise steadily and the pace of improvement in the jobs market will ease as we move into 2022 and beyond. Although our macro forecasts still justify above-average valuations, they imply headwinds from current levels. If the market is unwilling to view the recent rise in inflation as transitory or the recent slowing in jobs growth is more persistent than we expect, those valuation headwinds could come earlier and prove stronger.

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Macro and Equity Valuations: Tailwinds Behind, Headwinds Ahead

After the long rally of the last 12 months, US equity valuation levels are again at historically high levels. Unsurprisingly, there is increased focus on whether this is cause for major concern.

When it comes to bonds, macro investors take for granted that bond returns will be determined as much by how yields change over the holding period as by the current yield; that what matters for bond valuations is whether yields are high or low relative to the macro environment not simply relative to their long-term average; and that correctly predicting the macro environment is a good guide to how valuations may change. By contrast, when it comes to equities, high equity valuations are often treated as *prima facie* evidence of excessive valuations, regardless of the macro landscape.

We take a fresh look at equity valuations from a macro perspective here, as a complement to the much wider range of valuation work from our equity strategists. We argue that the relationship between equity valuations and the macro backdrop has a lot in common with more familiar lessons from the world of bonds, and highlight three points that illustrate the importance of macro drivers to thinking about equity valuations and returns.

1. Treating equities as a perpetual bond that delivers an “earnings yield” (the inverse of the price/earnings multiple) provides a pretty good approximation for US equity returns and is a helpful device for macro investors. The S&P 500 earnings yield alone—like other equity valuation measures—does a poor job of predicting future returns at short horizons and only an adequate job at longer horizons. But this is because—as for bonds—equity returns come not just from the current yield (valuation), but from changes in the required yield through the holding period. As a result, anything that can explain how that required “yield” will change improves the ability to predict returns.

2. What matters most is not whether equity valuations are high but whether they are higher than they “should” be. We show that the broad shifts in the earnings yield over the last 60 years are well-explained by three macro variables—bond yields, the unemployment rate and inflation—alongside a slow-moving demographic indicator. A simple measure of “macro valuation”—whether the earnings yield is high or low relative to these macro drivers—provides a more intuitive history of when equities were rich or cheap than standard valuation measures and adds to the ability to predict equity returns, particularly at shorter horizons.

3. An accurate forward view of three macro drivers—bond yields, the unemployment rate and inflation—leads to much better return predictions for US equities at all horizons. This is a consequence of the first two points—understanding how valuations will change is a key driver of returns, and valuations change with the macro environment. It may seem obvious that knowing the future should make a big difference to the ability to predict returns, but what is striking is that knowing the macro future is so helpful for equities.
These three lessons cast light on the current debate. The last time earnings yields (equity valuations) were at or below (above) current levels in the late 1990s, the macro environment was very different—at the time, the 10-year bond yield was at least 400bp above current levels and the rate of improvement in the labor market was much more modest. Our macro model of equity valuations suggests that equity valuations are roughly where we would expect them to be given today’s macro environment of unusually low yields, low inflation and a rapidly declining unemployment rate. Put simply, equity valuations are high, but these simple macro drivers suggest that they should be. However, we are forecasting that bond yields over the next few years will rise steadily and the pace of improvement in the labor market will ease, particularly as we move into 2022 and beyond. As a result, although the macro environment going forward should still justify valuations that are well above average, the macro effect on the valuation picture is likely to become steadily more of a headwind, as our Portfolio Strategy teams have also argued.

**Equities as a perpetual bond with an “earnings yield”**

For many macro investors, equity valuations can seem like an impenetrable mystery. At the risk of offending more sophisticated equity valuation practitioners, one way to think about the equity debate is to see that the main principles of bond valuation can be applied to equities too, at least at the macro level. Specifically, valuing the equity market can be thought of similarly to valuing a perpetual bond. We have made this point before, but a recap is helpful to the broader argument.

Earnings, unlike bond coupons, are uncertain and only partially paid out. But if a company is making its payout decisions correctly, then over time the overall earnings yield is roughly what should accrue to investors. Because of this, the “earnings yield” (the inverse of the more commonly quoted P/E ratio) can be thought of as a proxy for the expected real return on equities under some simple conditions, similar to the valuation of a perpetual bond that pays that earnings yield. The most important of those conditions is that the ‘earnings’ used to measure that yield should be adjusted both for the state of the cycle and for other one-off items. The most widely quoted version for the US equity market is Robert Shiller’s “Cyclically-Adjusted Price-Earnings” (CAPE) ratio. Inverting this measure provides a “Cyclically-Adjusted Earnings Yield” (CAEY) that can be thought of, in perpetual bond terms, roughly as the yield on the aggregate equity market. For convenience, we will refer to this measure simply as the “earnings yield” from here on, though there are many versions of this measure.

Exhibit 1 shows this measure going back to 1958. It illustrates both how low today’s earnings yield is by historic standards (and so how high valuations are), and how much fluctuation there has been in this measure over the decades. It is common knowledge that equity valuation measures generally have some power in explaining returns, but largely at longer time horizons. This is true of the earnings yield.
Exhibit 1: In perpetual bond terms, the cyclically-adjusted earnings yield can be roughly thought of as the yield on the aggregate equity market
Cyclically-adjusted earnings yield (inverse of the Shiller cyclically-adjusted price/earnings ratio) since 1958

Exhibit 2: Higher earnings yields are associated with higher equity returns
S&P 500 5-year annualized real total returns vs. cyclically-adjusted earnings yield since 1958

Exhibit 3: The proportion of subsequent real returns explained by the CAEY rises with the time horizon.
Adjusted R-squared of SPX annualized real total returns at 1, 3, 5, and 10-year horizons as explained by CAEY

To understand why, a comparison with bonds is again useful. For a perpetual bond, the ex-ante return is simply the yield. But the ex-post return is equal to the yield over that period less the percentage change in the yield (essentially, the change in the required return). If investors shift from requiring a 4% return on a bond to requiring a 5% return,
the bond experiences a capital loss to be able to provide that forward return. The same basic principle is true in equities. If investors demand a higher rate of return, then current prices need to fall to provide that return. If they are prepared to accept a lower rate of forward returns, then the current price should rise.

Exhibit 4 shows that the actual 5-year return on US equities is well-captured by valuing them like a perpetual bond. The earnings yield at the start of that period, less the percentage change in the earnings yield over the next five years is more than 90% correlated with actual five-year real total returns. So the main reason the earnings yield alone is an imperfect forecast of expected returns is because the required rate of return—and so the earnings yield—itself changes over time. And as Exhibit 1 from earlier shows, there have been very large changes in that required rate of return, in both directions, over the last few decades.

Exhibit 4: The 5-year return on US equities is well captured by valuing them like a perpetual bond

SPX 5-year annualized real total return and the CAEY less the 5-year annualized percentage change in CAEY are more than 90% correlated

Investors, of course, do not know in advance how the earnings yield will change, but this drives home two basic points. First, anything that helps to predict what the required rate of return (and hence the earnings yield or multiple) will be in the future will improve the ability to forecast equity returns. Second, the big underlying worry about high equity valuations is not simply that they imply lower returns—on average they do, since that is what a lower yield promises—the real concern is that valuations are not just high but “too high” and that at some point investors will require higher future returns to be comfortable holding equities, making the market vulnerable to sharper declines as the required return is increased.

A macro-consistent valuation measure

In assessing whether equity valuations are too high, it is common to simply point out the fact that equity valuations are unusually high relative to their historical average. And
it is true that on average, earnings yields are more likely to fall when they are high than when they are low. But just as with bond yields, theory supports the idea that the required return should vary with the macro environment, so a simple comparison with past averages is likely to be an incomplete guide.¹ There are good conceptual reasons to believe that the risk-free rate, the state of the cycle and demographic forces could, at a minimum, play a role in shaping the earnings yield (expected return) on equities that investors are willing to accept.

We find strong evidence that this is the case. Exhibit 5 shows that a simple macro model can account for a large amount of the variation in the earnings yield for the US equity market over the last sixty years. This model relies on only four variables:

1. **The US 10-year Treasury yield.** We find that a lower “risk-free” yield has been quite reliably associated with lower earnings yields (higher equity valuations), though generally with less than the one-to-one relationship in traditional equity risk premium calculations.²

2. **The change in the unemployment “gap”.** We find that earnings yields are lower (equity valuations are higher) when the unemployment rate is falling than when it is rising, proxied here by the three-month change in the three-month moving average of the U3 unemployment rate vs. the non-accelerating inflation rate of unemployment (NAIRU). There are good theoretical reasons for risk aversion to be counter-cyclical. We have also found evidence in the past that the market is particularly responsive to “second-derivative” changes, with risk aversion peaking when growth stops decelerating.

3. **The proportion of the global population that is of “prime saving” age (30-64).** We find that a higher proportion of “prime savers” is associated with a lower earnings yield (higher equity valuations). A larger number of prime savers is likely to increase desired global savings. That in turn can increase demand both for risk-free and risky assets, helping to push real risk-free rates and the required return on equities lower.

4. **Core inflation.** We find that higher core inflation has generally been associated with a higher earnings yield (lower equity valuations). The strong links between higher inflation and lower valuations are not conceptually entirely clear. Higher core inflation, particularly in the 1970s, is often associated with higher inflation uncertainty. It may also increase the risk of a tightening in monetary policy. Given that we also control for the unemployment rate, higher inflation may be evidence of supply constraints or negative productivity shocks. Regardless of the channel, the links between inflation and valuations are quite robust, as our Strategy teams have also shown, including in the lower-inflation period since the early 1990s.

¹ In a similar vein, our Portfolio Strategy teams have demonstrated that the equity risk premium responds systematically to macro drivers.

² One conceptual challenge is that the link between earnings yields and bond yields is stronger in nominal than in real terms, though both are robustly associated with valuations. We have found this before and use the nominal rate here. This may reflect the fact that true measures of historical inflation expectations are hard to construct, so estimates of real rates are not consistent with what investors expected at the time. It may also be that some investors do compare equity and bond yields in nominal terms, partly because of the taxation system.
We make one further adjustment for the most recent cycle. Last year, we saw unprecedentedly large and rapid swings in the unemployment rate as restrictions effectively shut down part of the US economy in March-April 2020 and then gradually opened it up again. This resulted in a much larger rise in the proportion of the unemployed who classified themselves as being temporarily laid off, which has largely
reversed (Exhibit 6). We hypothesize that this part of the rise in unemployment may have had a different impact on the risk premium than the standard changes in unemployment rates that our model generally captures. We find strong empirical support for this hypothesis and adjust the unemployment rate accordingly. Our model estimates that the market has effectively weighted shifts in this “excess” unemployment rate by much less (around 10%) than standard shifts in unemployment.3

This simple model may not capture all the potential linkages between the macro backdrop and equity valuations.4 It does, however, capture about 75% of the variation in the earnings yield since 1958, including most of the major turning points (Exhibit 7). While the exact loadings on these four factors are sensitive to the time period in focus, the basic structure of the model is also fairly robust. So we think this establishes a strong argument that the macro environment plays an important role in determining the equity valuations that investors are prepared to accept.

Exhibit 7: The macro-consistent earnings yield captures most of the major turning points in equity valuations

Model-predicted earnings yield (“macro-consistent earnings yield”) and actual cyclically-adjusted earnings yield since 1958

We can interpret the gap between the macro-consistent earnings yield predicted by this model and the actual earnings yield as a measure of macro valuation. Essentially, this gap measures whether earnings yields are high or low relative to their normal relationship with the macro environment, rather than to the historic average. Exhibit 8 shows this macro valuation measure, expressed as the percentage of over- or under-valuation of the equity market relative to the macro-consistent valuation. Our

3 While lockdowns were announced in March, there were extensive filing and reporting delays. Because of this, we also assume that the April unemployment rate, which saw the largest spike, was also the value for March, when the market learned of it.

4 We found some evidence, for instance, that the realized volatility of inflation and activity are additive in explaining variations in the earnings yields, but the gains were small and we wanted to avoid over-specification.
Macro valuation measure is (like the equity risk premium) a more intuitive measure for when the US equity market was rich or cheap than the simple level of valuation over time. It shows US equities as most expensive relative to the macro by far in the 1999-2000 bubble, but also meaningfully so in the late 1960s, and at their cheapest relative to the macro in March 2009 and in the depth of the 1982 recession. At some other points in time (the 1973/74 oil shock, for instance), our macro valuation measure was quite stable despite large shifts in equity prices and absolute valuations, indicating that shifts in valuation were broadly in line with their macro drivers. The last time earnings yields were at or below their current levels in the late 1990s, the comparison with the macro backdrop was much less favorable and our macro valuation measures pointed to a market where valuations were not just high, but much higher than macro-consistent levels.

More importantly, our macro valuation measure is helpful for forecasting returns. Exhibit 9 shows that the macro valuation measure does a better job of forecasting S&P 500 returns than the earnings yield itself at all horizons less than 10 years, and it seems to matter more at short horizons. And using both measures together is an improvement over using the earnings yield alone at all horizons. This holds true for S&P 500 returns as predicted by the equity risk premium (proxied by the nominal 10-year yield less the 10-year real yield) in place of the earnings yield. This suggests that whether valuations are high or low relative to the macro backdrop may matter at least as much as whether they are high or low in absolute terms.
The value of a good macro forecast

We saw earlier (Exhibit 4) that if we can predict how the earnings yield itself will change, we are likely to be able to predict most of the forward return profile for equities. We have shown that simple macro drivers are important for helping to explain the evolution of the earnings yield over time, and it follows that correctly predicting the macro environment on some key dimensions is—at least on average—likely to be helpful in predicting forward returns in conjunction with indicators of current valuation (the earnings yield and our macro valuation measure).

We find that this is indeed the case. To illustrate this, we model forward real equity returns not simply as a function of the earnings yield and our macro valuation measure but also as a function of the changes in the three main macro drivers that were associated with shifts in the earnings yield over time: 10-year Treasury yields, core inflation and the unemployment rate relative to NAIRU. This is equivalent to asking what the value is of accurately forecasting the evolution of the macro landscape in terms of these three commonly predicted indicators.

Having an accurate macro forecast on these three dimensions makes a big difference to the ability to forecast returns at all horizons. Rising bond yields, core inflation and unemployment rates are all associated—on average—with lower equity returns, after accounting for current valuation. Exhibit 10 shows that the extent to which returns can

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5 The demographic variable is slow-moving and not part of standard macro forecasting. We omit it here.
be explained rises sharply at all horizons after accounting for these three macro shifts.

**Exhibit 10: Accounting for forward shifts in bond yields, core inflation and unemployment rates significantly improves equity return predictions**

Adjusted R-squared of SPX annualized forward real returns as explained by CAEY, macro valuation, both CAEY and macro valuation and CAEY & macro valuation & forward changes in bond yields, core inflation and unemployment rates

As Exhibit 11 also shows, at 5- and 10-year horizons the models with “perfect foresight” (that account for forward changes in bond yields, core inflation and unemployment in addition to the earnings yield and macro valuation at the start of the period) do a good job of explaining much of the historical return profile outside the equity bubble in the late 1990s. The contribution from knowing the forward macro view easily outweighs the contribution from valuation alone at all horizons. In fact, after taking account of our macro valuation measure and the shifts in the macro landscape, the marginal contribution of the traditional valuation measure—the earnings yield—is generally small.
It may seem obvious that knowing the future makes a big difference in explaining forward equity returns. And of course, macro forecasts will often be far from perfect. But the broader point is that accurately predicting a small group of macro variables that we routinely forecast has the potential to substantially improve equity return forecasting, even over shorter horizons but especially over longer ones. The fact that knowing the macro future—without any knowledge of corporate or earnings outcomes—matters supports the idea that the US equity index can be sensibly viewed as a macro asset. This echoes our findings that there are quite robust links between consensus growth forecasts and US equity returns (at least over the shorter period since 1990 when data exists) even at a quarterly frequency. We have used that result as the basis many of our exercises aimed at benchmarking our growth forecasts to equity outcomes. Our US Strategy team has also used the links between the growth environment and returns as one way to forecast long-run equity returns. In all of these cases, the conclusion is that macro shifts are important drivers of aggregate equity performance.

**Not rich to the macro, but heading there**

Exhibit 12 shows the recent history of our macro valuation measure and of its two components: the actual earnings yield and our macro-consistent earnings yield. It shows that the equity market looked somewhat rich on our macro valuation measure through 2018 as yields rose alongside Fed tightening, but cheapened from late 2018 to mid-2019 as bond yields fell. The late 2019 rally brought macro valuation close to fair on the eve of the corona-crisis.
As the unemployment rate jumped in the spring of 2020, the macro-consistent earnings yield rose. Despite this, our macro valuation measure cheapened, as the market fell more than our model estimated was justified by macro conditions. As the recovery began, the tailwinds of falling unemployment and bond yields pushed our macro-consistent earnings yield lower, with these macro conditions underpinning higher valuations between April 2020 and January 2021. As a result, the market has remained cheap on our macro valuation measure through the recovery period, although the ongoing rally in equities has limited the extent of that cheapness.

Since January, however, the sharp rise in bond yields has pushed our macro-consistent earnings yield off its lows, suggesting that the macro environment has become less supportive of higher valuations in recent months. That has been enough to reverse most of the remaining cheapness on our macro valuation measure, which shows the market as of March to be roughly “fair” to the macro. These recent headwinds to the macro environment are likely to continue. Our forecasts are for further steady, though not dramatic, increases in bond yields from current levels and for a bulge in core inflation that lasts well into 2021. Once we are through the drops in unemployment that we expect over the next two or three quarters, the pace of labor market improvement is also likely to slow.

Exhibit 12 (left panel) shows, in red, that these forecasts imply that the macro-consistent earnings yield is likely to rise further as the macro backdrop becomes less favorable to equity valuations. What that means for our macro valuation measure (right panel) depends on what we assume about market prices. Assuming a constant earnings yield (where prices rise in line with long-run earnings), the upper line shows our macro valuation measure becoming steadily richer on our forecasts over the coming years. Assuming constant market prices (where the earnings yield, E/P, increases with growing earnings), the forecast overvaluation is modest and does not grow over time.
The bottom line, as our strategists have laid out across major regions, is that valuations are likely to compress and more of the burden of future price gains is set to fall on growing earnings as the market moves from the “Hope” to the “Growth” phase.

These forecasts imply that macro conditions should still support valuation levels that are much higher than normal. As discussed earlier, this is a very different story to the late 1990s bubble, when we last saw multiples at or above current levels. High valuations, even if broadly appropriate, do however mean lower long-term returns. Valuation measures alone—the earnings yield and our macro valuation measure—are consistent with 10-year real total returns for the S&P 500 in the range of 2-4%. This is broadly in line with the more detailed work on long-run returns by our US Strategy team, using a wider range of methods. If we include the impact of the macro shifts we expect over the next two or three years (the furthest that we forecast the three key variables), the conclusions are similar for that horizon. Our model that combines valuation and macro shifts sees our macro forecasts as consistent with the S&P 500 reaching around 4200 by March 2022, around 4450-4500 by March 2023 and around 4600-4700 by March 2024.

If the market is unwilling to believe that inflationary pressures will prove transitory or if the unemployment rate is stickier than we expect, valuation challenges could appear more quickly. The sharp jump in our macro valuation measure in April, which reflects the combination of the sharp jump in core inflation and the disappointing jobs report, is likely to be temporary, and we would discount it as a signal. But it highlights the risks if these supply-side dynamics prove less transitory than we expect. Pressure on equity markets since those two releases may be a reflection that the market is putting some weight on those concerns already. The willingness of the market to look beyond a sustained period of elevated inflation readings, much as it looked through GDP growth and earnings weakness in 2020, may be particularly important. Although we think inflation pressures are ultimately temporary and will be less intense in core PCE inflation, the Fed’s preferred measure, we are now forecasting that core CPI inflation will stay high for some time.

We would not lean too heavily on the exact levels of valuation consistent with the macro environment. Our model is simple and the precise estimates are sensitive to the time period over which we estimate it. The core messages, however, are not. Unusually low bond yields, low inflation and a rapidly improving labor market are conditions that we should expect to be associated with unusually high valuations. As yields rise and the rate of improvement in the labor market eases, however, the macro support for valuations is likely to erode, at least to a degree. If the recent combination of higher inflation and weaker jobs growth is more persistent than we forecast, or the market places meaningful weight on that possibility, those valuation pressures could come earlier.

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