DISTILLATE CAPITAL

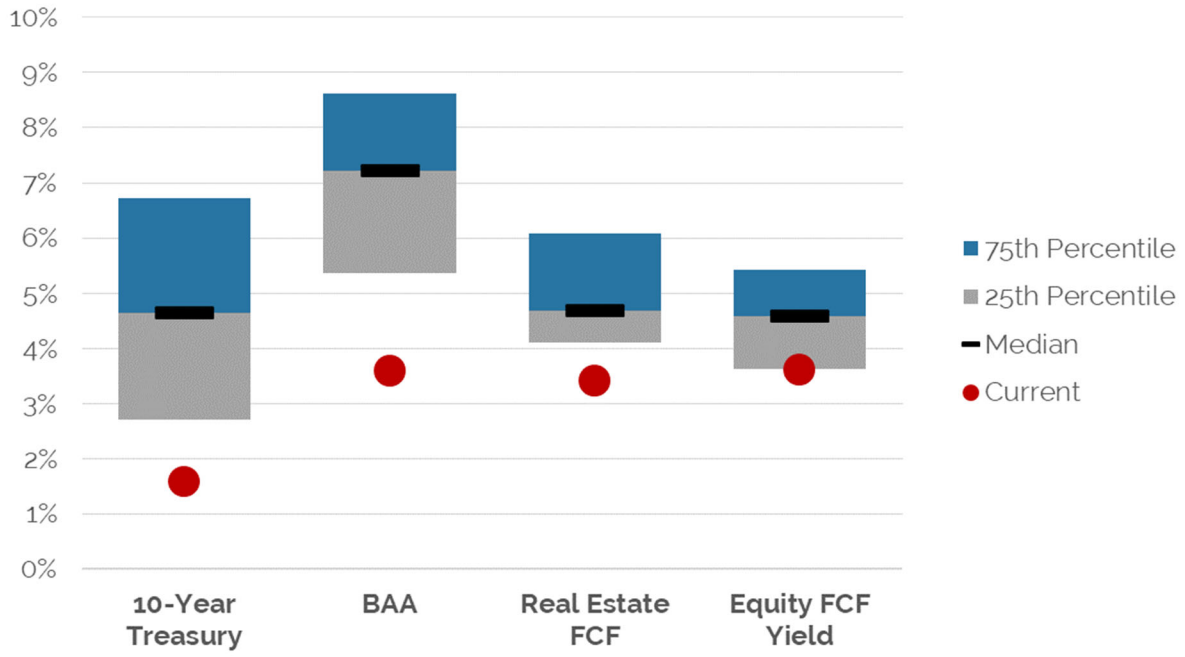
Asset Class Valuations in a Historical Context

Summary

- Many investors at present are concerned about how strong prior gains and elevated valuations in various asset classes will impact returns going forward.
- To assess these apprehensions, we looked at yields for different asset classes over time and relative to one another.
- In this framework, equities look somewhat expensive compared to historical ranges (they have been more expensive about a quarter of the time), but still look relatively attractive in the context of other asset classes that are currently valued near historical extremes on a cash flow basis (See Figure 1).

Current yields for 10-year treasuries, BAA bonds, and real estate free cash flows are near the bottom of their historic ranges while the equity free cash flow yield stands out as looking somewhat more attractively valued.

Figure 1: Comparison of Current Asset Class Yields & Historical Ranges ('85 through May '21)



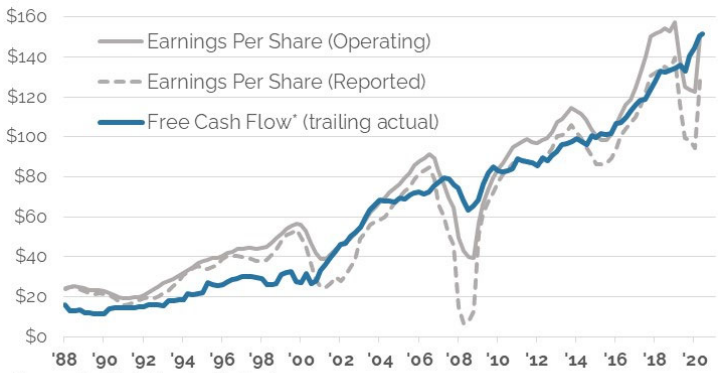
Source: FactSet, Real Estate Research Corporation (RERC), Real Capital Analytics (RCA), Distillate Capital

Equity Free Cash Yield

Starting with equities, we prefer to look at valuations based on free cash flow. We have written extensively about the accounting distortions brought by the economic evolution to a capital-light economy and how this has made traditional metrics like price-to-earnings (P/E) or price-to-book (P/B) less meaningful (for greater detail, see our paper: "Accounting for Value in a Changed Economy"). Consequently, we measure equity valuations with free cash flow since it is unaffected by this shift and is at the heart of a fundamental tenet that the value of an asset is the present value of its future free cash flows.

Accounting changes and the shift to intangible investment have made reported and operating earnings more volatile and less meaningful than free cash flow.

Figure 2: S&P 500 Free Cash Flow vs. Earnings Per Share

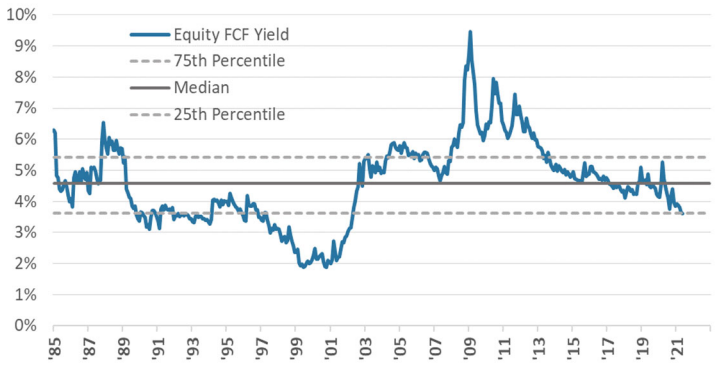


Source: FactSet, Standard & Poor's
*see footnote 1 for additional free cash methodology

Figure 2 shows trailing free cash flows for the S&P 500 Index versus reported and operating earnings dating back to the time Standard & Poor's began reporting the latter.[1] Both reported earnings, which are calculated in accordance with accounting rules, and operating earnings, which are self-reported by companies, suffer from distortions relating to the evolution toward capital-light businesses. This paradigmatic change negatively impacted earnings per share by shifting capital expenditures that were not included in net income to research and development expenses that are. Free cash flow, on the other hand, incorporates both types of spending and so is unimpacted. As this shift to research and development investment reduced net income but did not affect free cash flow, free cash flow per share has generally increased in relation to both operating and reported earnings per share, as can be seen in **Figure 2.** Additionally, accounting rule changes requiring non-cash write-offs have made earnings measures more volatile over time, which is also evident in the comparison.

Based on trailing free cash flow, the current equity market valuation is modestly expensive relative to history going back to 1985,

Figure 3: S&P 500 Trailing Free Cash Flow Yield



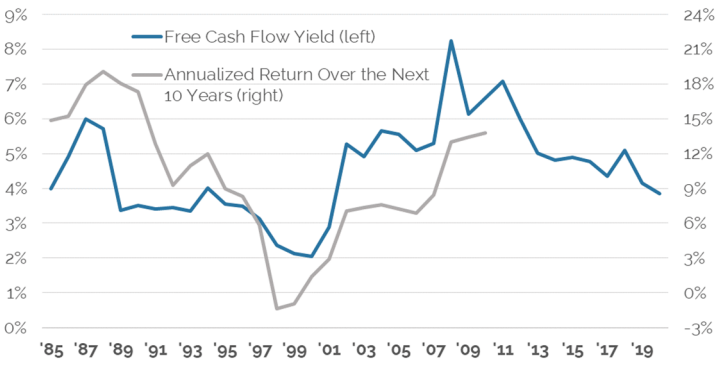
Source: FactSet

Free cash flows can be expressed as a valuation measure in the form of a free cash yield when they are divided by price. Historically, the equity market free cash yield on trailing free cash flow has averaged around 4.5%. Around 25% of the time, it has been below 3.6% and for another 25% of the time, it has been above 5.5%. **(See Figure 3)**. The current figure of 3.6% is right near the 25th percentile, making the present valuation modestly expensive from a historic perspective, but not exceptional.

If we then compare historic free cash flow yields with future returns to check the measure's efficacy as an indicator of value, there does appear to be a fairly good directional relationship **(See Figure 4)**. Beyond the intuitive appeal of the metric, the historic relationship lends credibility to the valuation measure even though our data series goes back only to mid-1980s.[2]

Starting free cash flow yield and returns 10-years forward appear linked.

Figure 4: S&P 500 Free Cash Flow Yield vs. Returns Over the Next 10 Years



Source: FactSet

[1] FactSet data is used for the free cash flow calculation and goes back to 1985. Constituents without cash flow data were excluded and the index re-weighted. Fiscal year data is used prior to 2000 and trailing twelve-month data thereafter.

[2] It wasn't until 1984 that the Financial Accounting Standards Board (FASB) recommended a cash flow statement be include with companies' full financial statements and until 1987 when it was standardized.

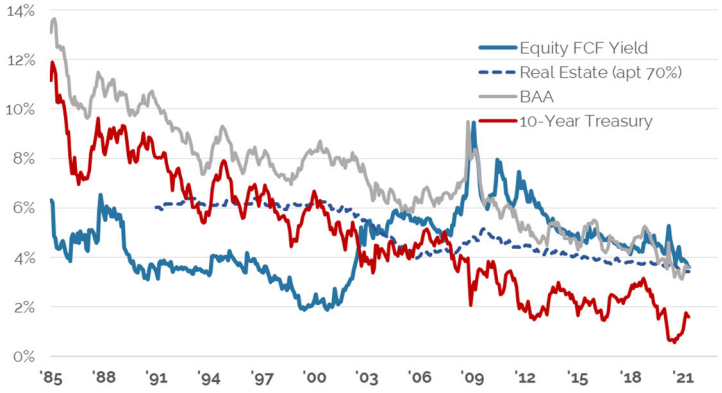
Comparing Yields Across Different Asset Classes

Using the previously described equity free cash flow yield, it is possible to compare yields across different asset classes. **Figure 5** shows historic yields for 10-year treasury bonds, BAA-rated corporate debt, an index of commercial real estate,[3] and the S&P 500 Equity Index.

The BAA yield and real estate free cash flow yields have followed the 10-year Treasury yield fairly closely over time and have dropped considerably alongside it over this period. The equity free cash flow yield (shown in red) has also moved in a similar pattern to the 10-year Treasury yield over the short-term, but has not followed the same large downward move of other asset classes over the full period.

10-year treasury yields, BAA bond yields, and real estate free cash flow yields have all moved sharply lower together over the past four decades while equity free cash flow yields are more mixed.

Figure 5: NTM Free Cash Flow Yield on the S&P 500 vs. 10-Year Treasury and BAA Yields

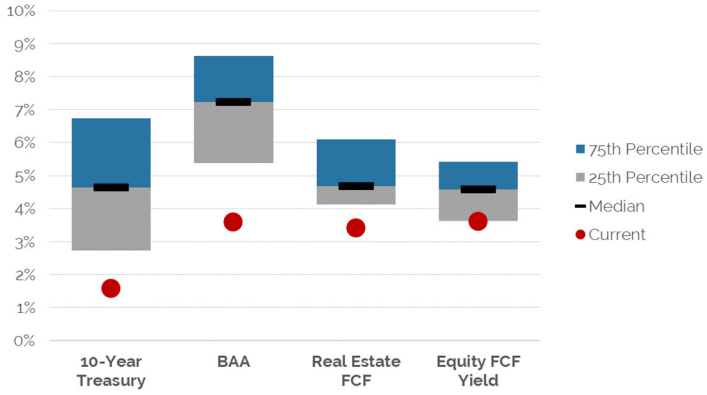


Source: FactSet, RERC, RCA, Distillate Capital

From this series of yields, it is possible to construct a chart showing historic ranges as well as current yields relative to those ranges to put some perspective around valuations at present. **Figure 6** depicts current valuations represented by the shaded red circle, median valuations by the black bar, and the 25th to 75th percentile ranges in the grey and blue bars. We should note that since the yield data does not follow a normal distribution, we do not look at standard deviations for any of the data sets, but instead discuss their respective percentile ranges.

Current yields for 10-year bonds, BAA bonds, and real estate free cash flows are well below historical levels, while the equity free cash flow yield is around the 25th percentile.

Figure 6: Current Yields vs. Historic Ranges by Asset

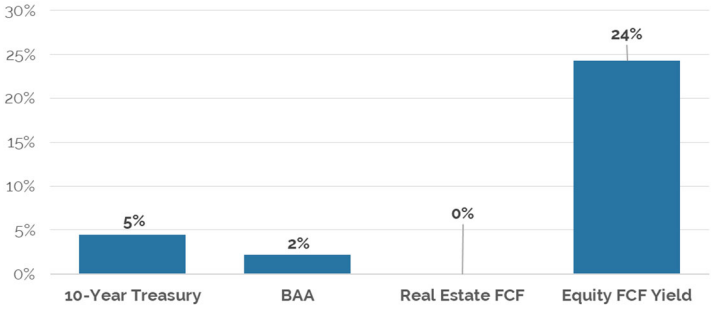


Source: FactSet, RERC, RCA, Distillate Capital

This comparison in **Figure 6** shows that current yields for 10-year treasuries, BAA bonds, and real estate free cash flows are near the bottom of their historic ranges while the equity free cash flow yield stands out as being closer to the 25th percentile. In fact, the current 10-year Treasury yield ranks at 5%, meaning yields have almost never been lower; the BAA yield is likewise at 2% and thus almost at its most expensive in our history; and real estate free cash flow yields rank at 0%, meaning they have never been more expensive in our data set. Equities, by contrast, are at the 24th percentile, indicating that while they are somewhat rich versus their own history, they are not nearly as expensive as other asset classes on a relative basis (**See Figure 7**.)

When current yields are ranked in percentage terms against their historic ranges going back to 1985, fixed income and real estate yields are either at or close to their most expensive ever while equities yields are around the 25th percentile of expensiveness versus history.

Figure 7: Current Yield Percent Ranking Relative to History by Asset Class



Source: FactSet, RERC, RCA, Distillate Capital

[3] Based on cap rate yields for apartment buildings from RERC to 2000 and RCA thereafter and adjusted by the historic ~30% free cash flow discount to net operating income per the NCREIF Q2 2018 Indices Review as well as Joseph Paglia's 2017 "Some Thoughts on Real Estate Pricing". Lastly, it should be noted that this data is based on surveyed estimates of forward year net operating income and is thus more akin to forward estimated equity free cash flow rather than the trailing yield that is shown.

The Logic Behind Relative Yields

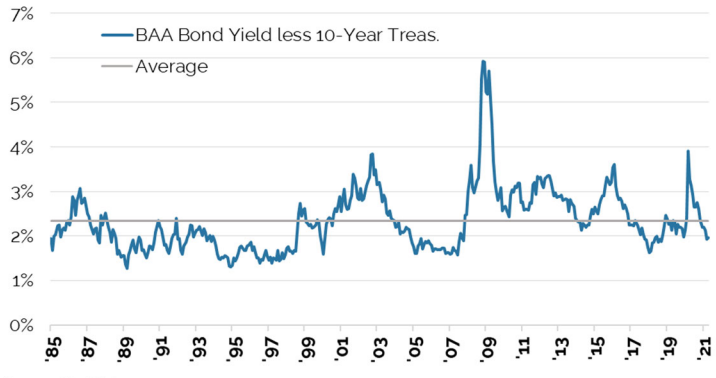
Beyond simply looking at how current yields compare in a historical context across various asset classes, it is worth discussing what each yield represents and the intuition behind where it ranks relative to the other assets.

10-Year Bonds: the yield on 10-year treasury bonds is the most straight-forward. This is the yield an investor will receive over 10 years if the bond is held to maturity. At the current yield of 1.6%, an investor paying $100 today will receive ~$1.60 per year for the next ten years. Since the bond is paid in a currency that the United States government can print, there is essentially no default risk. While the yield is safe in this sense, it is fixed and does not grow over time. This means that there is no protection from inflation, nor is there any upside return potential if the bond is held to maturity.

BAA Bonds: BAA bonds are those issued by corporations that are considered riskier than the A category but above the "junk" categories of double B and below. These bonds are like treasuries in that they pay a fixed amount that does not grow over time. But unlike treasuries, there is a risk of default. To compensate investors for taking on this risk of default, these bonds carry a higher yield than treasuries of a comparable maturity and this difference is referred to as a spread. This spread has averaged around 2.3% historically but can increase sharply when investors become more pessimistic and expect greater defaults. At present, the BAA spread is somewhat below the historic average, meaning that BAA yields are pricing in somewhat less default risk relative to history (**See Figure 8**). Historically, data from Standard & Poor's shows that around 0.3% of BAA bonds default in a given year and 1.5% cumulatively over a 5-year period.[4] The BAA spread over treasuries less the default rate (adjusted for a recovery rate) is the excess return earned over risk-free 10-year treasuries bonds.

The current BAA spread is slightly below the long-term average of 2.3%.

Figure 8: BAA Spread Over 10-Year Treasury Yield

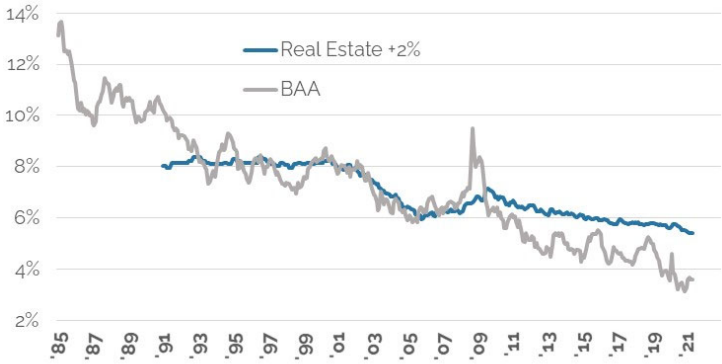


Source: FactSet

Real Estate: real estate valuations are usually described by cap rates, which measure net operating income (NOI) relative to the purchase price. Since NOI typically excludes expenses for leasing commissions, tenant improvements, and building maintenance, it needs to be adjusted to arrive at a comparable free cash flow figure that represents the cash actually available to the asset owner. Unlike bond payments, the cash flow paid by a real estate investment does grow over time, typically in line with the rate of inflation. Industry data shows an annual growth in NOI for the real estate market overall of just over 2% going back to the mid-1980s, roughly matching the rate of inflation over this period.[5] Anyone who has had their rent increase from one year to the next would be familiar with why this is the case. If this growth rate is added to the real estate free cash yield, the combined yield roughly matched the BAA yield until the two started to diverge around a decade ago (**See Figure 9**). This means that after adjusting for growth, the risk premium for real estate and BAA bonds was almost identical until real estate began to look relatively more attractive recently despite ranking at its most expensive valuation versus its own history. Real estate can also be an appealing asset class to taxable investors as the taxes on cash flows can often be sheltered through depreciation and the tax code may allow investors to avoid capital gains on sale proceeds by reinvesting in similar assets through 1031 exchanges.

If historic NOI growth of 2% is added to the real estate free cash flow yield, the resulting figure roughly tracks the BAA yield.

Figure 9: Real Estate Free Cash Flow Yield Plus 2% Historic NOI Growth vs. BAA Yield



Source: FactSet, Real Estate Research Corporation (RERC), Real Capital Analytics (RCA)

Equities: Equities are much more complicated than bonds or real estate for several reasons. Similar to real estate, equity free cash flows grow over time. But unlike real estate, equity free cash flows grow much faster than the rate of inflation due to the substantial investments that are made in research and development, capital expenditures, and other areas. Because of this, it is worth digging a little deeper into the drivers of equity free cash flow growth to get a better sense of why it has averaged around 8% per year historically and what the growth potential may be going forward.

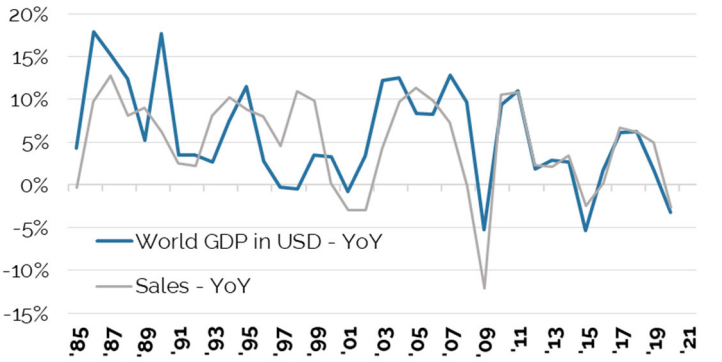
[4] Standard & Poor's "2018 Annual Global Corporate Default and Rating Transition Study."

[5] The NCREIF Property Index (NPI) includes ~$650 billion of commercial real estate holdings and various quarterly reports show ~2% NOI growth from the early 1980s.

At the most basic level, free cash flow growth depends on sales growth, which tracks changes in world nominal gross domestic product (GDP) in U.S. dollars (**See Figure 10**). It makes sense that sales should follow overall economic growth and given that around half of S&P 500 sales come from abroad, it is logical to look at global GDP. It is also intuits that even though sales growth and world nominal GDP growth do not match perfectly in any given year, both have averaged a similar ~6% annually since the mid-1980s when the free cash flow data begins.

S&P 500 sales growth has generally tracked world nominal GDP growth in U.S. dollar terms.

Figure 10: S&P 500 Sales Growth vs. World GDP Growth in U.S. Dollar Terms

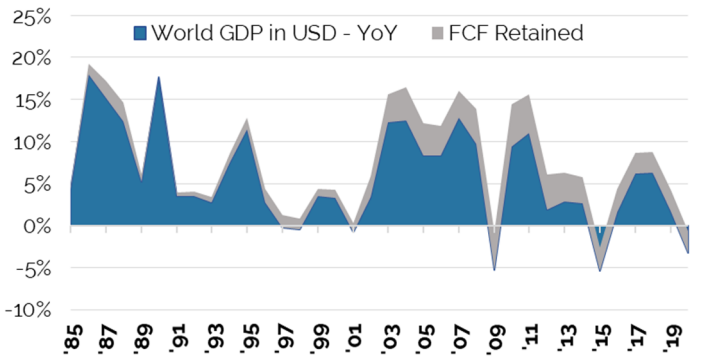


Source: FactSet

In addition to sales growth, we also need to consider the impact of free cash flow that is not paid out as dividends but that is instead reinvested for additional growth beyond what was already spent on capital expenditures or research and development. For example, if the free cash yield after these investments is 4% and a 2% dividend is paid, this leaves another 2% to reinvest in share repurchases or acquisitions to further grow free cash flow per share beyond topline sales growth. **Figure 11** adds this retained free cash to nominal world GDP growth in dollars to arrive at an estimate of total potential free cash flow per share growth from both sources.

Free cash flows that are not paid out as dividends also add to growth and can be added to world GDP in U.S. dollars to better model free cash flow.

Figure 11: World Nominal GDP Growth in U.S. Dollar Terms Plus Retained Free Cash Flow



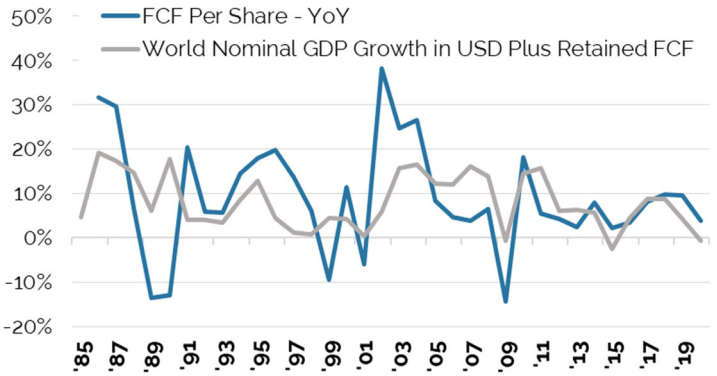
Source: FactSet

Since this additional growth from reinvestment is the residual of the overall free cash flow yield and the dividend payment, cheaper share valuations can actually boost growth per share by enabling greater repurchases or reducing the cost of acquisitions. This somewhat paradoxically means that if the market's valuation is cheaper because of reduced expectations for future growth, the improved valuation itself can actually help to boost growth by enabling greater repurchases or other investments to lessen this risk.

The combination of world nominal GDP growth in dollars plus retained free cash flow can then be used as a loose guideline for total growth in free cash flow per share. While the relationship between actual free cash flow per share and this model is not exact given the myriad additional factors that may cause a disconnect in any given year, it does seem to provide a good general guideline (**See Figure 12**.) Additionally, the long-term average free cash flow growth of 8% lines up well with the historical 6% average of world sales growth in U.S. dollar terms plus the historical average 2% retained free cash flow yield that is not paid out in dividends.

S&P 500 sales growth has generally tracked world nominal GDP growth in U.S. dollar terms, as would be expected.

Figure 12: Free Cash Flow Growth vs. World Nominal GDP Growth Plus Retained Free Cash Flow



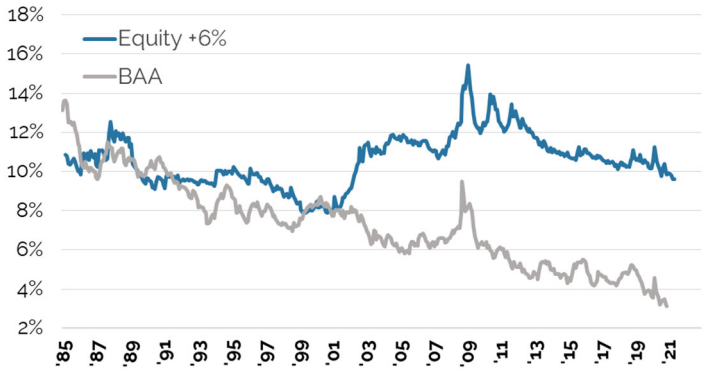
Source: FactSet

This basic model is not designed to give an exact relationship to free cash flow growth, but instead a general guide that can provide insight into what future growth could look like. Estimates from the International Monetary Fund (IMF) call for longer-term post-recovery (2023 to 2026) nominal world GDP growth in dollar terms of just over 5% which is split into roughly 3% real GDP growth and dollar-based inflation of 2%. Faster growth of 4.5% in the developing world is predicted to offset somewhat more sclerotic gains of 1.6% in the developed world. A more pessimistic investor could reduce this nominal growth rate to 4% with very modest real GDP growth of just 2%. This more subdued growth outlook then needs to be combined with the roughly 2½% prospective free cash flow yield that is estimated to be retained after dividends. The result is a fairly attractive potential free cash per share growth of around 6½%.

If we are then to look at the equity free cash yield plus growth versus the BAA yield like we did with the real estate yield, because of the difference in retained and paid out free cash flow, we cannot simply add the 8% historical growth rate to the free cash yield because we would be double counting the retained free cash yield that is reinvested for growth that has averaged around 2%. If we subtract this amount and only add 6% to the free cash flow yield, the resulting very basic yield plus growth figure roughly matches the BAA yield for a period of time, but then diverges sharply in the early 2000s (**See Figure 13**).

If historic equity free cash flow growth is added to the equity free cash flow yield less the reinvested share to avoid double counting, the resulting figure is similar to the BAA yield for a time, but then diverges sharply.

Figure 13: Equity Free Cash Yield Plus Growth Less Reinvested Free Cash Flow vs. BAA Yield



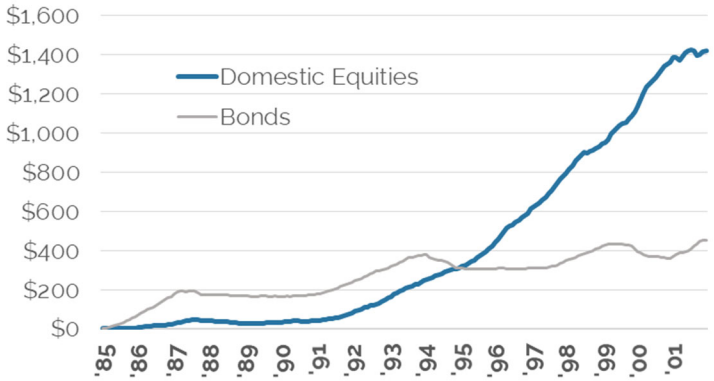
Source: FactSet

This disjuncture between the growth adjusted equity yield and the BAA yield raises two key possibilities. First, the disconnect could be the result of investors becoming more pessimistic about the prospective growth in equities and this could have caused them to demand a higher free cash yield relative to the BAA yields than they had historically. But free cash flow has grown at an annualized 7.5% since the divergence, so growth fears then would have been greatly mistaken. The spread also looks too wide at present to be explained by growth fears alone since our model for free cash flow per share suggests growth should remain reasonably healthy even with slower global GDP gains. It therefore seems unlikely that reduced growth expectations alone explain the divergence.

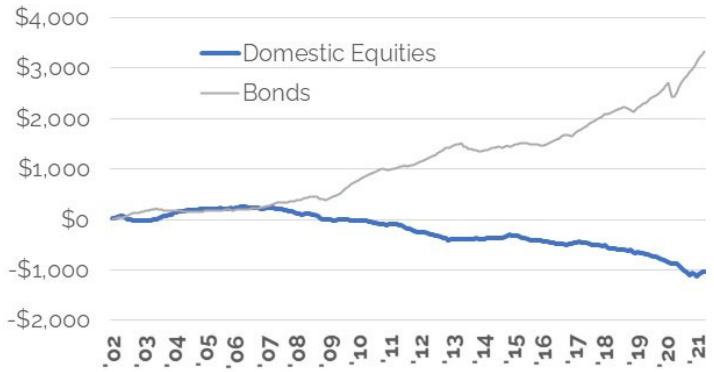
Alternatively, it is possible that investors did not sour on the growth outlook to such a degree, but instead suddenly demanded a much higher risk premium to hold equities than they had in the past. This seems more plausible and is supported by evidence from investor behaviors towards equities. Over the period that the equity yield plus growth roughly matched the BAA yield (1985 through 2001), flows into domestic equities were strong and significantly outpaced inflows into bonds (**See Figure 14**). In the period when the equity free cash plus growth yield began to diverge from the BAA yield, equity flows were much weaker and reversed into a cumulative outflow of over $1 trillion compared to an inflow of $3 trillion into bond funds through march of 2021. (**See Figure 15**).

Measured by flows, equity sentiment deteriorated relative to bonds around the same time that the equity yield diverged from the BAA yield.

Figures 14 & 15: Investor Flows Into Equity vs. Bond Funds Over Separate Periods ($Bil)



Source: FactSet, ICI



Source: FactSet, ICI. Data includes ETFs beginning in 2014

Also over this second period, many endowments shifted away from equities and into alternative assets like private equity. According to the NACUBO Endowment Study, endowments' weighted average equity allocation dropped from over 62% in 2000 to around 33% in 2020, while the alternatives share increased from under 10% to nearly 50%. In combination, the shift in flows and the decline in endowment allocations to equities supports the idea that investors viewed equities less favorably in this period and demanded a larger risk premium to hold them.

While it is impossible to know for sure what explains this change in sentiment towards equities, the period in question does encompass several significant market declines. First, the tech, media, and telecom bubble of the late 1990s burst in 2000 and the equity market plummeted by around 50%. Then, in the financial crisis of 2007, only a few years later, the market fell by nearly 60% only to be followed by another steep decline during the Coronavirus Pandemic of 2020. Concurrent with these events (and perhaps in part due to them) was a popularization of investment risk models that center on short term price fluctuations. The combination of a few large declines and an increased reliance on short-term volatility by asset allocators may have dampened equity sentiment and may help to explain the present wide gap between equity free cash yields and those in other asset classes relative to history.

Potential Future Returns

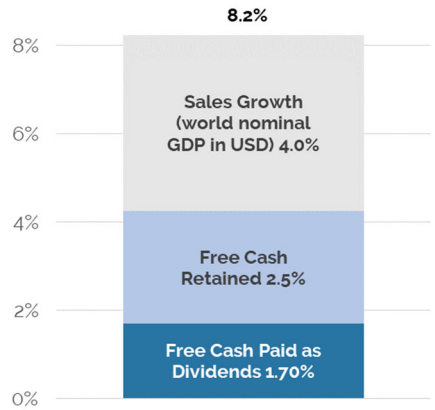
So where does this all leave us in trying to assess current valuations and the outlook going forward? Based on the analysis of historic yields and contrary to many prevailing opinions, equity valuations appear somewhat expensive but not wholly unreasonably while other asset class yields look historically extremely expensive. This valuation disconnect is likely due to a combination of diminished growth expectations alongside a sharply higher equity risk premium versus history.

In terms of gauging potential future returns, the starting yield of 1.6% and 3.6% on 10-year Treasury and BAA bonds means that returns are obviously likely to be very low if held to maturity. Real estate looks somewhat more favorable on a relative basis at a 3.4% free cash yield plus 2% growth and potential tax benefits may make this relative advantage even greater.

For equities, the starting trailing yield of 3.6% looks expensive at the 25th percentile, but not unreasonable. Since it is possible that trailing free cash flows may be somewhat depressed from the pandemic, the 4.2% yield on next twelve month estimates may offer a better picture of potential returns. Of that, a 1.7% dividend yield is projected, leaving 2.5% to be retained. Then, since the cash flows underpinning this yield already reflect investments in research and development, capital expenditures, and other areas that generate topline growth that has historically approximated world nominal GDP in U.S. dollars, we can add an estimate for world GDP growth to the starting free cash yield. If we use a somewhat more pessimistic nominal figure of 4% based on a 2% real rate and 2% inflation, the resulting potential total return for equities is 8.2% (**See Figure 16**). Even if growth is slower or some of the reinvested cash flows are squandered and this figure is too high by a percentage point or more, potential returns still look fairly reasonable and especially so compared to alternatives.

A decomposition of potential equity returns starting with the free cash yield and adding in growth points to reasonable possible future returns.

Figure 16: Deconstruction of Potential Equity Returns



How Our Methodology Ties In

Overall, our aim is to capture the same long-term benefits of investing in equities generally, but with the additional upside potential that comes from trying to preserve capital in economic downturns while still participating in rising markets. We seek to do this by being disciplined on valuation and owning more fundamentally stable and less levered companies.

In addition to filtering out companies with less stable businesses to help preserve capital in down markets, our strategy seeks to invest in equities with high free cash flow yields and little debt. This combination means that these stocks may not only have the opportunity for outperformance if their valuations improve, but also because they can use the excess cash they generate for shareholder returns or additional growth investments. And because we also filter out companies with high leverage, the idea is that less of this excess free cash will need to go to paying down debt and more of the retained free cash flow will accrue to the equity holders through payouts or reinvestments for growth. We think the potential positives of this retained free cash flow can often be overlooked, especially over the longer-term. Retained free cash flows are not generally factored into sell-side models which tend to simply forecast the cash building on the balance sheet without being redeployed. For longer-term investors, this can result in favorable upward revisions to consensus estimates over time as the cash is actually used accretively. Additionally, some of the companies selected by this methodology may be under-capitalized such that they could have room to take on additional debt for growth initiatives to the benefit equity holders.

In terms of how we think about growth, rather than try to achieve high levels of growth in the portfolio by purchasing stocks with extremely optimistic forecasts, we tend to think such companies get overvalued for behavioral reasons (for greater detail, see our paper: "Behavioral Biases: Exploiting Systematic Mispricings"). Instead, we think the somewhat less exciting slow and steady growers can get systematically underpriced and are thus more compelling investments. This means that the companies our process tends to favor still have fairly attractive growth potentials, but more importantly, these growth opportunities may be more likely to be achieved and are not reflected in expensive share prices. This follows the logic that in equity investing, it isn't how much growth you get that matters, but how much growth you get relative to what you have paid for.

Finally, it should be noted that the potential return figures in this analysis are not near-term predictions, but instead reflect a possible longer-term outcome. Equities are much more volatile in the short-run (**see Appendix 2 on page 9**) and prices a year or two in the future could be significantly higher or lower and, using the same return model, suggest lower or higher long-term expected returns, respectively, from that point in time.

APPENDIX 1: Model of Hypothetical Returns

Another way to look at what theoretical returns might look like going forward is to construct a very simple 10-year model for each asset class.

In this model, equities are shown as a function of both dividends and free cash flow with a starting dividend yield of 1.7%, and a trailing free cash flow yield of 3.6%, based on current figures. All are assumed to grow at 6%, which is below the long-term average of 8% and reflects a more cautious outlook for world nominal GDP growth combined with a benefit from reinvested free cash flows. The dividend payout ratio of free cash flow is assumed to be constant. Under these assumptions, a purchase of $100 today generates roughly $24 of dividend income over the next ten years and trailing free cash flow grows from $3.6 to $6.5 in year 10. This $6.5 of free cash flow results in sale value of roughly $179 based on a free cash yield in year 10 of 3.6% which is constant with the current rate. When this is combined with the $25 generated from dividend payments, the total is $203 (**See Table 1**).

Using starting yields and forecast growth rates, we can create a simple model for future returns to examine implications of current valuations and different possible scenarios.

Table 1: 10-Year Income & Sale Model For Different Asset Classes

	Equity (Div)	Equity (Trailing FCF)	10 Year	BAA	Apt Bldg (FCF)
Purchase Price	$ 100	$ 100	$ 100	$ 100	$ 100
Yield at Purchase	1.70%	3.6%	1.6%	3.6%	3.4%
Growth	6.0%	6.0%	0.0%	0.0%	2.0%
Default (BAA only)				0.30%	
Year 0 (prior year)	$ 1.7	$ 3.6			
Year 1	$ 1.8	$ 3.8	$ 1.6	$ 3.3	$ 3.4
Year 2	$ 1.9	$ 4.1	$ 1.6	$ 3.3	$ 3.5
Year 3	$ 2.0	$ 4.3	$ 1.6	$ 3.3	$ 3.5
Year 4	$ 2.1	$ 4.6	$ 1.6	$ 3.3	$ 3.6
Year 5	$ 2.3	$ 4.8	$ 1.6	$ 3.3	$ 3.7
Year 6	$ 2.4	$ 5.1	$ 1.6	$ 3.3	$ 3.8
Year 7	$ 2.6	$ 5.4	$ 1.6	$ 3.3	$ 3.8
Year 8	$ 2.7	$ 5.8	$ 1.6	$ 3.3	$ 3.9
Year 9	$ 2.9	$ 6.1	$ 1.6	$ 3.3	$ 4.0
Year 10	$ 3.0	$ 6.5	$ 1.6	$ 3.3	$ 4.1
Income Sum	$ 23.8		$ 15.6	$ 33.4	$ 37.3
Yield at Exit	1.7%	3.6%	NA	NA	3.4%
Sale Price	$ 179.1	$ 179.1	$ 100.0	$ 100.0	$ 119.5
Total	**$ 202.8**		**$ 115.6**	**$ 133.4**	**$ 156.8**

The income from10-year treasuries is straight forward with static annual income payments of $1.6 and a sale price of $100 equal to the $100 original investment. This generates a combined total of $116 over the full 10-year period.

BAA bonds in this model are assumed to suffer an unrecovered default of around 0.3% which reduces the 3.6% yield to 3.3% and produces a cumulative $33 of income over the 10-year period plus the $100 principal repayment for a combined $133.

Real estate free cash flows start at the current yield of 3.4% on forward estimates and grow at the historic 2% inflation rate. This produce $37 in income to the investor over the 10-years. The real estate sale price is then based on free cash flow of $4.1 in year 10 and is assumed to occur at a valuation that is consistent with the current 3.4% free cash yield.

While this model is very simplified, it allows us to compare current yields and the impact of future growth in some useful ways. Given attractive current yields and better growth, equities produce much more in combined income. Even if the free cash and dividend growth rates are further reduced under very pessimistic assumptions for global GDP growth, the gap would still be substantial. For example, a 4% growth rate that would require almost no global real GDP growth over the next decade would still lead to a superior combined income of $171.

Alternatively, if we stick with the 6% growth scenario, which already reflects a slower growth outlook, it is possible to flex different assumptions to see at what point equity and fixed income results are the same. For the equity total and the 10-year bond total to be equivalent, the equity sale price would need to be around $87. Given free cash flow per share of $6.5 in year 10, this would require an equity free cash flow yield at exit of 7.2%, which would be near the cheapest on record in the history of our data set. The same analysis can be applied to BAA bonds and each scenario is laid out in **Table 2**. Another way of looking at this is that an investor today would prefer 10-year bonds to equities over the next decade if he or she expects that equities will not only grow more slowly than in the past (6% vs. 8%) but more importantly because he or she expects to sell the equity position at a record low free cash flow valuation in ten years' time.

In order for an investor to receive the same income from equities and fixed income over the next decade, the equity sales price would have to be completed at an extraordinarily cheap valuation.

Table 2: Equity Sale Valuations Required for Equity and Fixed Income Returns to be Equal

Sale Pricefor Stocks to Equal 10-Year	$ 90.5
Implied Yield	7.2%
Percentile Rank	97%

Sale Price for Stocks to Equal BAA Bonds	$ 108.3
Implied Yield	6.0%
Percentile Rank	87%

We think these scenarios help to shed light on some of the risks and possibilities for asset class returns in the future. This simplified model also highlights the dangers for long-term investors of measuring risk by looking at short-term volatility instead of long-term fundamentals and shortfall risk.

APPENDIX 2:
Trailing & Forward Returns

Many investors try to divine future returns by looking at the past. While we do not think this makes any sense over the short-term, doing so over the long-term can be instructive in several ways. **Figures 17-20** show 1, 10, 20, and 30-year annualized returns on horizontal axes with subsequent returns over comparable periods on vertical axes. To provide some context of how current trailing returns stack up, we plugged in 7% as a forward return matched with the most recent trailing period and show the resulting hypothetical data point as a red diamond. For example, on the chart of trailing 10-year returns and the returns over the subsequent 10-years, the red diamond appears at the actual trailing return level of 13.8% on the horizontal axis with 7% plugged in for the forward 10-years of 2021-2030 on the vertical axis.

These charts highlight several key things. First, short-term returns are highly variable around the long-term average of 10%. Over longer periods that are more consistent with investors' actual holding periods, however, returns smooth out significantly. In the case of rolling 30-year returns, the extent of this smoothing is remarkable as annualized returns are tightly clustered between around 10% and 13% even over periods that included enormous economic and geopolitical tumult.

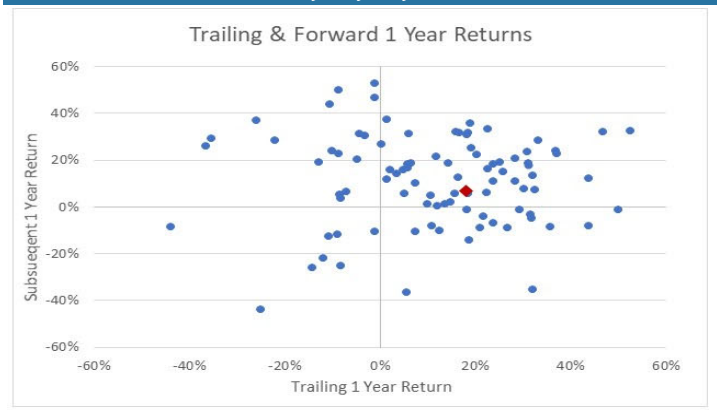
Second, trailing returns do not look extraordinarily strong despite frequent commentary to this end. Current returns over the trailing 10-year period are above average and further to the right on the horizontal axis, but not anomalously so. Over the trailing 20 and 30-year periods, trailing returns are actually below average. This may come as a surprise given prevailing commentary about the extraordinary strength of the current rally.

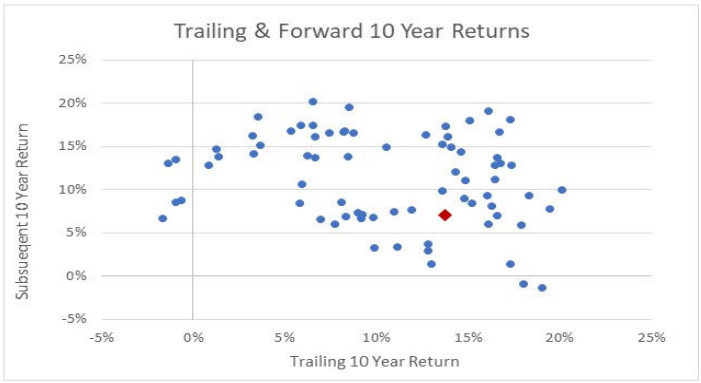
Lastly, the relationship between past and future returns highlights that there is very little link over periods of 1 or 10 years. Over 20-year periods, however, there is a much tighter inverse relationship indicating that when prior 20-year returns have been modest, as they were from 2000 through 2020, the subsequent 20-year return is generally much stronger. The red diamond in this chart shows that the plugged 7% return over the next twenty years would be substantially below what would be predicted based on history. Over the even longer 30-year period, the relationship with prior returns breaks down again, although all returns are clustered very tightly. Again though, the 7% return we use as a plug for the forward 30-year period looks aberrantly low in a historical context.

The point of this analysis is not to suggest that 20-year forward returns will approximate the 14% suggested by historical trailing 20-year returns, or that 30-year forward returns will fall in their historic 10-13% range. Instead, we think this exercise serves as a useful reminder for where consensus projections for low single digit returns stack up in a longer-term historical context.

Trailing returns over 1 and 10 year periods are a poor guide for future returns, but 20-year trailing returns have had more predictive power historically and 30-year returns show remarkably little variation.

Figures 17-20: Relationship Between Trailing & Forward Returns Over 1, 10, 20, & 30 Year Periods





Source: Damodaran returns database, annual total returns 1928 to 2020

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