October 16, 2012

Goldman Sachs

Europe

Strategy Matters

Portfolio Strategy Research

Testing equity valuations part 2: Equities vs. bonds

The gap between dividend yields and real bond yields is close to a 40-year high in Europe. If history is a guide, this gap indicates strong prospects for equities relative to bonds for long-term investors. However, compared with history, an unusually large part of the yield gap is driven by the very low level of nominal bond yields. We analyze whether this could cut the link between the yield differential and relative returns, and argue that even though it might weaken the link a bit, the case for equities vs. bonds still holds up in the current low bond yield environment.

The relative yield signal also works in a low yield environment…
We look at the impact of the relative yield on equity vs. bond performance in different bond yield environments, and find no clear signs that the impact of the relative yield is lower in a low yield environment.

…but the composition of the relative yield matters somewhat…
The relative yield has three components: the dividend yield, the nominal bond yield and inflation expectations. We allow for separate effects of each of these factors in the relationship with future outperformance of equities over bonds and find that a high relative yield that results from a high dividend yield sends a somewhat stronger signal than a high relative yield that results from a low bond yield.

...and allowing for this effect the relative yield still favors equities
A simple model that allows for this composition effect suggests that European equities could outperform 10-year German government bonds by 11 pp annualized over the next two years.

Rule based models suggest a very high allocation to equities…
We update our work on allocation rules between equities and bonds. A rule based on the relative yield as well as a rule based on the relative yield and realized volatility both point to a maximal allocation to equities.

...but we are neutral equities & underweight bonds over 3 months
The work above refers to mechanical rules. These are useful inputs, but our formal allocation recommendations take more information into account. In a broader asset allocation context we currently recommend an underweight in government bonds over both 3 and 12 months and a neutral weight on equities over 3 months and an overweight over 12 months. We expect European equities to outperform 10-year German government bonds by more than 11 pp over the next year.

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Forecasting returns when bond yields are low

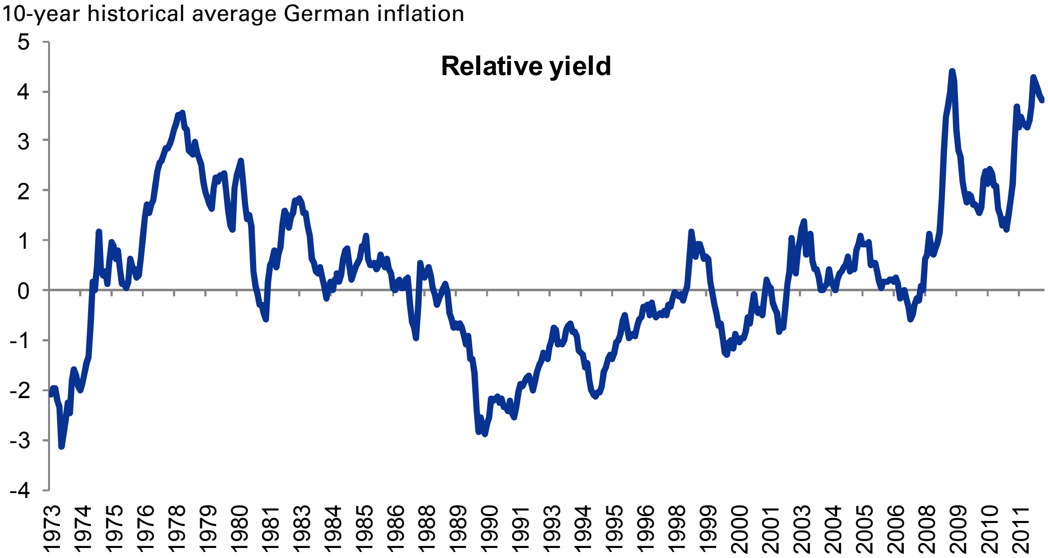
This report is the second in a three part series taking a critical look at how to use valuation in the aftermath of the financial crisis. The first part: *Strategy Matters: Testing equity valuations part 1: Is the low bond yield deceiving us?* (October 5, 2012) analyzed how to value equity markets in the current environment of extremely low yields. The third part will look at the use of cyclically adjusted PEs.

In this second part we analyze the implications of the gap between the dividend yield on European equities and the real bond yield on 10-year German government bonds, which is very close to a 40-year high (Exhibit 1). Historically, the valuation differential represented by the relative yield[1] has been a strong driver of subsequent relative performance for longer-term investment horizons. This is illustrated in Exhibit 2, which shows a positive relationship between the relative yield at the beginning of a 5-year investment horizon and the subsequent relative return between US equities and US 10-year government bonds, using more than 130 years of data.

Therefore, unless this time is different, the current yield gap would suggest outperformance of European equities over German government bonds over a five-year time horizon. This was the key argument in our report of March 21, 2012, *GOAL – Global Strategy Paper No. 4: The Long Good Buy; the Case for Equities*, where we argued that equities were well positioned relative to bonds for long-term investors.

One aspect of the current situation that clearly is extreme, however, is the level of bond yields, and we therefore analyse whether the relationship between relative valuation and returns is likely to hold up in a low yield environment. We conclude that the link might be a bit weaker than usual when bond yields are low, but the difference is not large enough to derail the case for equities vs. bonds for long-term investors.

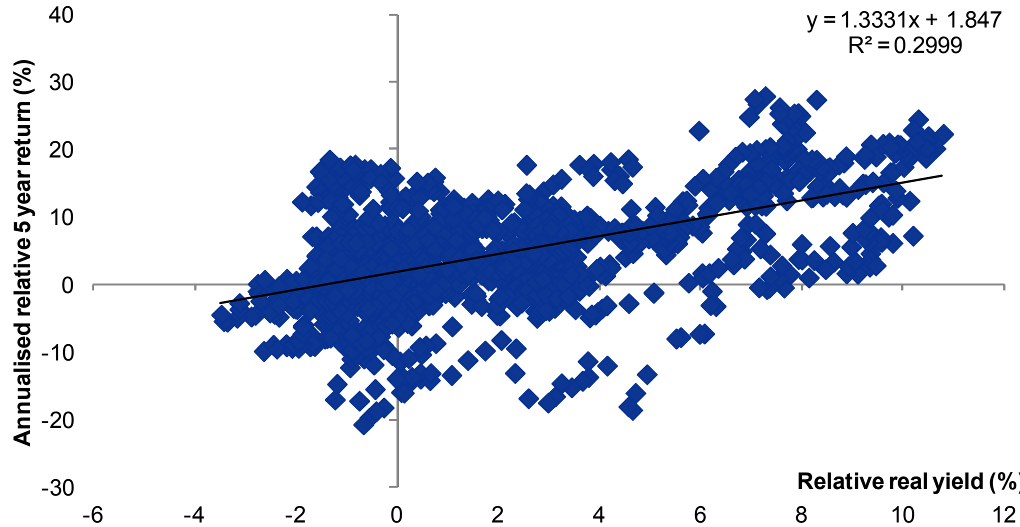
Exhibit 1: The relative yield in Europe is close to a 40-year high
The relative yield is the difference between the dividend yield and the real bond yield, where we define the real bond yield as the difference between the 10-year nominal German bond yield and 10-year historical average German inflation



Source: Datastream, Haver Analytics, Goldman Sachs Global ECS Research.

[1] We define the relative yield as the dividend yield – the real bond yield. The real bond yield is defined as the 10-year nominal bond yield – 10-year historical average inflation. We use 10-year historical average inflation as a proxy for inflation expectations as we do not have historical data on inflation expectations.

Exhibit 2: High relative yields have been followed by high relative five-year returns
Annualised 5-year relative returns between US equities and 10-year government bonds vs. the relative yield at initiation of the investment horizon. History starting in 1881.

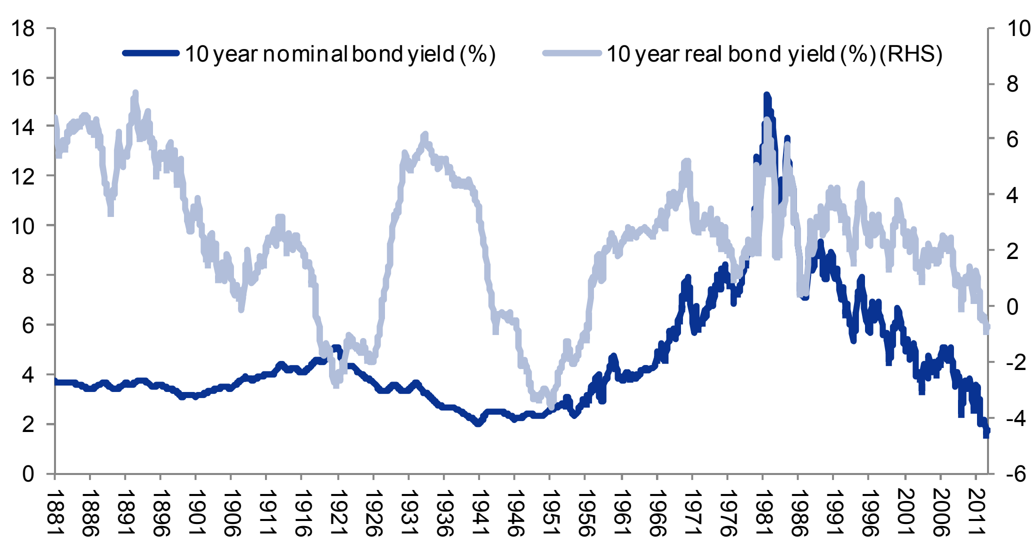


Source: Robert Shiller data, Goldman Sachs Global ECS Research.

To illustrate how extreme the current situation is, Exhibit 3 shows that nominal bond yields in the US over the last few months have been at their lowest levels for the last 130 years. Real bond yields, when measured as the difference between nominal bond yields and 10-year historical average inflation, are also close to their lows.

The real bond yield is the right measure to use to compare bonds with equities, in our view, as equities represent a real asset, but the real bond yield is harder to measure as there is no accurate retained record of inflation expectations. The earlier episodes in history where our measure of real bond yields were lower than they are today were driven mainly by high inflation expectations and, therefore, could reflect poor measurement of true expectations rather than truly lower real yields than we are seeing today.

Exhibit 3: US 10-year nominal bond yields around their lowest level for the last 130 years
The 10-year real bond yield is defined as the difference between the 10-year nominal bond yield and 10-year historical average inflation.

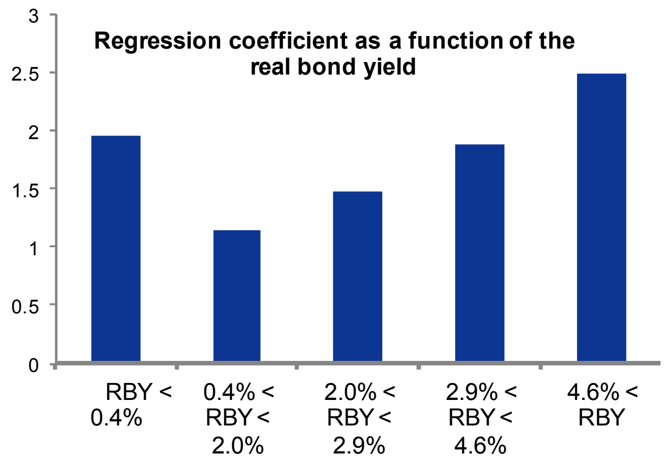


Source: Robert Shiller data, Goldman Sachs Global ECS Research.

The signal from relative yields in different bond regimes

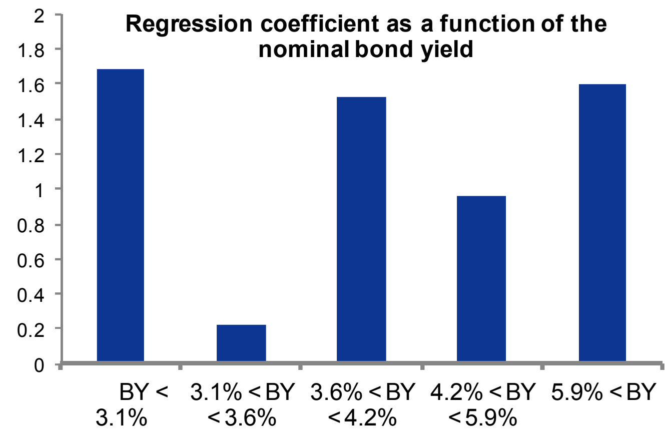
To assess the impact of the level of bond yields on the relationship between relative yield and relative returns, we split the more than 130 years of history from Exhibit 2, into five groups based on the level of the real bond yield when the investment horizon started and then estimate the regression line from Exhibit 2 for each of these five subsamples. Exhibit 4 shows the slope coefficients from these regressions, for each band of real bond yields. Since the level of real bond yield is hard to measure precisely owing to the uncertainty about true inflation expectations, we repeat the analysis based on the level of the nominal bond yield (Exhibit 5).

Exhibit 4: The level of real bond yields has limited impact on the relationship between relative yields and relative returns…
Beta coefficient from a regression of five-year annualised relative returns between US equities and bonds, for subsamples corresponding to different levels of the 10-year real bond yield



Source: Robert Shiller data, Goldman Sachs Global ECS Research.

Exhibit 5: ….this is also true for the nominal yield level
Beta coefficient from a regression of five-year annualised relative returns between US equities and bonds, for subsamples corresponding to different levels of the 10-year nominal bond yield



Source: Robert Shiller data, Goldman Sachs Global ECS Research.

In both cases, the slope coefficient does not vary in a systematic way with the level of bond yield, suggesting that the effect of the level of the bond yield on the relationship between the relative yield and subsequent relative returns is limited.

The variation between groups in Exhibits 4 and 5 looks quite random. Some randomness is to be expected, given the low number of observations in each group once we have split the time series into five based on the yield level.

Adjusting relative returns for the low bond yield

Another way to assess the impact of low bond yields on the link between relative yields and relative returns is to change the regression from Exhibit 2 to allow for different sensitivities to the three components of the relative yield; namely the dividend yield, the nominal 10-year bond yield and the measure of inflation expectations.

Exhibit 2 above estimates the relationship (1):

$$\textit{Relative return} = \alpha + \beta * \textit{relative yield} + \varepsilon$$

$$= \alpha + \beta * \textit{(div. yield – (10 yr. nom bond yield – inflation expectation))} + \varepsilon$$

From the equation we can see that the regression in Exhibit 2 constrains the regression coefficient on each of the three components of the relative yield to be the same.

A less restrictive regression would allow these coefficients to be different by estimating the relationship (2) instead:

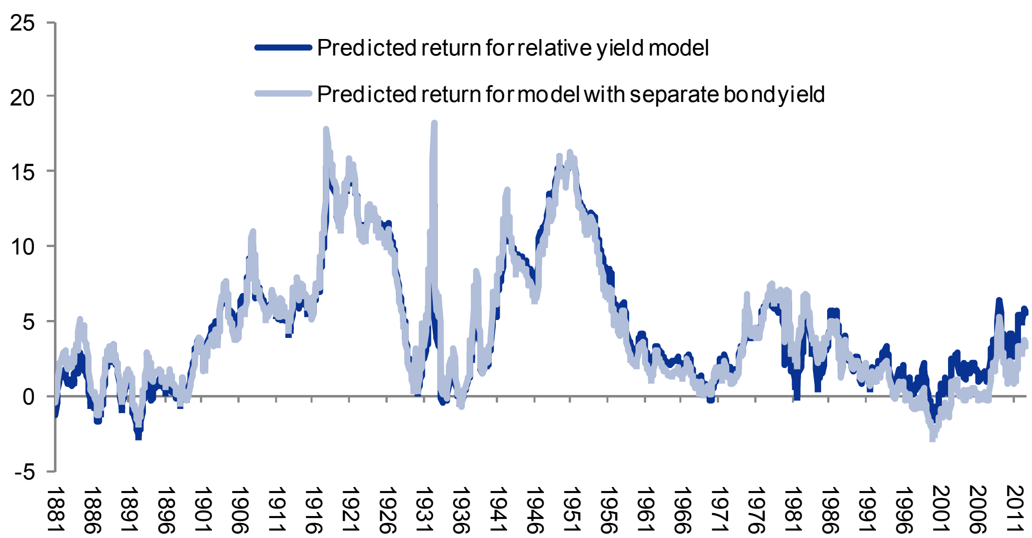
$$\textit{Relative return} = \alpha + \beta * \textit{div. yield} - \gamma * \textit{10 yr. nom bond yield} + \delta * \textit{inflation expectation} + \varepsilon$$

This less restrictive relationship (2) allows for the idea that a high relative yield that results from a high dividend yield might be more important for relative returns than a high relative yield that stems from a low bond yield. There are good reasons why this could be the case. Equities are a significantly longer duration asset than 10-year government bonds, and therefore it could well be that a high dividend yield is more significant for relative returns than a low bond yield. When we estimate relationship (2) there is some evidence that the dividend yield is more important than the bond yield; however, the effect is not that large.

Exhibit 6 shows the predicted five-year relative return based on relationship (1) and relationship (2) using data going back to 1881. The deviation in predicted returns between the two methods is fairly small, even at the current extreme level of bond yields.

Exhibit 6: The difference in predicted return between model (1) & (2) (see pages 4-5) is small

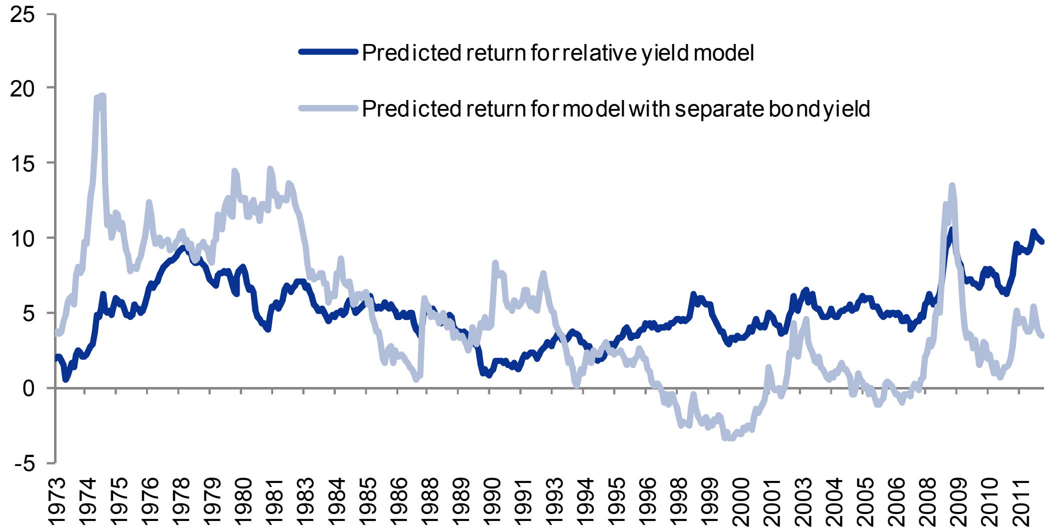
Fitted value from the relative yield model (relationship (1)) and the model with separate bond yield (relationship (2)) on pages 4-5 for the US market. For both models we use five-year annualised relative returns



Source: Robert Shiller data, Goldman Sachs Global ECS Research.

In Exhibit 7 we repeat this analysis for European equities relative to 10-year German government bond yields. Here the deviations between relationship (1) and relationship (2) have been larger over time, but currently the difference between the two approaches is 6 pp, somewhat larger than the result for the US.

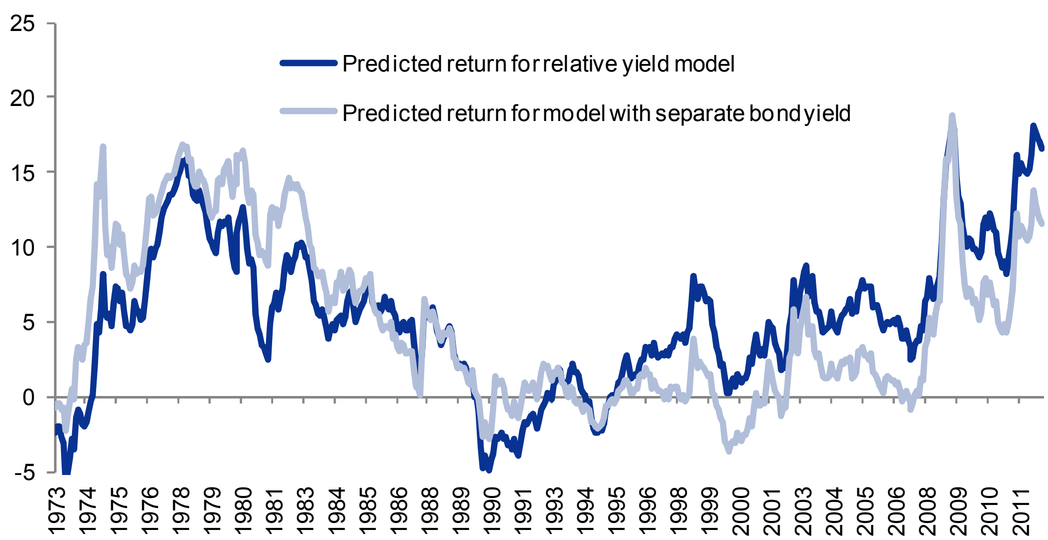
Exhibit 7: …the difference is somewhat larger in Europe…
Fitted value from the relative yield model (relationship (1)) and the model with separate bond yield (relationship (2)) on pages 4-5 for the European market. For both models we use five-year annualised relative returns



Source: Datastream, Haver Analytics, Goldman Sachs Global ECS Research.

Since we only have data from 1973 in Europe there are only a few independent five-year periods that can be used to assess the relationship between returns and valuation. This means that estimation results are highly uncertain. To get more independent periods, Exhibit 8 below focuses on the annualised relative returns over a two-year period instead for European equities vs. 10-year German government bonds. Here the difference between the results from relationship (1) and (2) above is 5 pp, close to the results for the five-year horizon.

Exhibit 8: … but declines for a two year investment horizon
Fitted value from the relative yield model (relationship (1)) and the model with separate bond yield (relationship (2)) on pages 4-5 for the European market. For both models we use two-year annualised relative returns



Source: Datastream, Haver Analytics, Goldman Sachs Global ECS Research.

The model based on relationship (2), which allows for the effects of a low bond yield to be lower than the effect of a high dividend yield on subsequent relative returns, currently points to 11% annualized outperformance of European equities over German bonds per year for the next two years. This is the result of a simple model rather than a forecast. Our formal forecasts, as published in the September 21, 2012, *GOAL: Asset allocation update* are somewhat more optimistic, are for European equities to outperform German government bonds by 20% over the next year.

Implementing allocation strategies based on relative yield

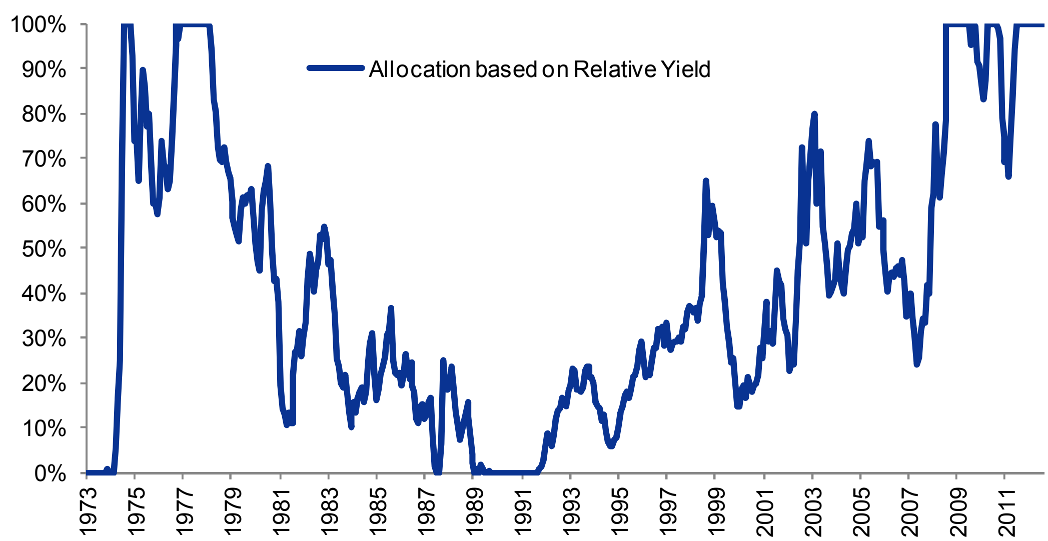
We have argued above that the yield gap between equities and bonds favor equities for long-term investors even when taking into account that an unusual large part of the yield gap is due to low bond yields. In our October 17, 2011, *GOAL – Global Strategy Paper No. 1* and our October 25, 2011, *GOAL – Global Strategy Paper No. 2*, we looked at how to incorporate this idea into asset allocation using a rule based approach.

We argued that allocation based on the relative yield, had outperformed a fixed allocation between equities and bonds over time, and that the performance could be further improved by incorporating information from realized volatility as well. The idea is that whereas valuation can be used as a measure of long-term latent risks, volatility is a measure of risks on which the market is currently focused, therefore, the combination of the two signals gives a good allocation strategy.

Exhibits 9 and 10 update our two allocation rules. Both the rule based on the relative yield and the rule based on both the relative yield and realized volatility point to a 100% allocation to equities, which is the maximum we allow for. This points to the potential in equities vs. bonds, but at the same time it is a mechanical rule, which takes into account only a limited amount of information.

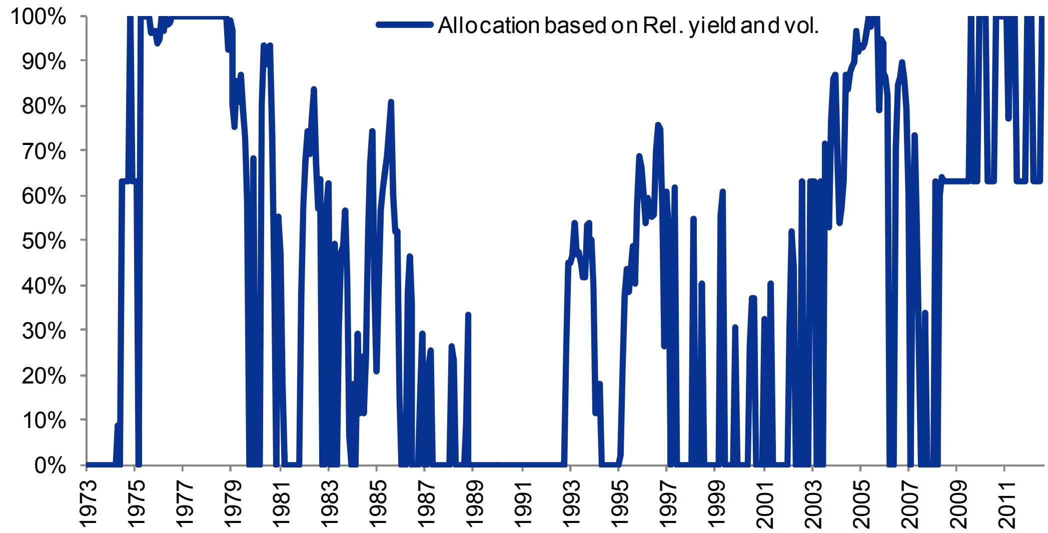
Our latest GOAL publication has our current allocation recommendations across five asset classes based on everything we look at. Here we recommend an underweight in government bonds over both a 3- and a 12-month horizon and a neutral in equities over 3 months and an overweight in equities over 12 months.

Exhibit 9: The relative yield suggests a high allocation to equities based on simple rules…



Source: Goldman Sachs Global ECS Research.

Exhibit 10: ...this also holds up when realized volatility is taken into account as well



Source: Goldman Sachs Global ECS Research.

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Reg AC

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