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MONTHLY

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THE STOCK-BOND CORRELATION

Introduction

Diversification in a portfolio is a good thing but depends on assembling assets that are not perfectly correlated with each other. This requires having assets that do not always move in the same direction at the same time. A balanced portfolio of stocks and bonds is better diversified than a portfolio concentrated in a single or small number of asset classes.

Although bonds have a lower expected return when compared to stocks, they also have lower risk. Adding bonds will clearly reduce the risk of a stock-only portfolio. In fact, this reduction in risk ends up being greater than the reduction in the overall portfolio return. Figure 1 shows this, using historical data on the Russell 3000 Index and the Lehman Aggregate Bond Index. This improved risk-return tradeoff is the primary benefit of diversification.

In this *Monthly*, we look at the correlation between stocks and bonds, and how the diversification benefits and tradeoffs have behaved over the long-term and more recently.

Stock-Bond Correlation

Since the correlation between stocks and bonds is important to diversification and portfolio risk, it can be instructive to look at some of the drivers that have affected this relationship. Over the long run, we would expect the returns on stocks and bonds to be positively correlated, although by only a small amount.

The historical correlation between stocks and bonds has been moderately positive as expected. This is because returns to financial assets are ultimately driven by what the real economy can produce and deliver to owners of capital. As that changes over time, financial asset prices should move accordingly.

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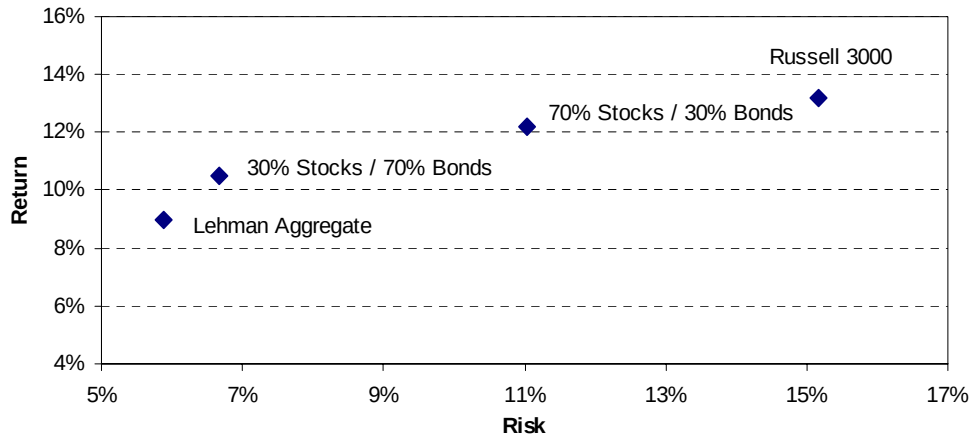
CURRENT TOPICS

The Stock-Bond Correlation

STRATEGY

Emerging equity exposure was reduced to a minimum across portfolios. This strategy change, together with minimum exposure to high yield and emerging bonds, leaves overall portfolio risk well below benchmark.

Figure 1: Historical Diversification
Stocks, Bonds and Blended Portfolios



Sources: Lehman Bros, Russell, Stairway Partners Note: Based on monthly data from 1/80

"ADDING BONDS WILL CLEARLY REDUCE THE RISK OF A STOCK-ONLY PORTFOLIO. THIS REDUCTION IN RISK ENDS UP BEING GREATER THAN THE REDUCTION IN THE OVERALL PORTFOLIO RETURN. "

THE STOCK-BOND CORRELATION - CONT'D

Long Term

Looking at Figure 2, we can see that the correlation was relatively high in the late '70s and first half of the '80s. The explanation for this behavior is pretty straightforward. Rising inflation, accompanied by slow economic growth, in the 1970s caused both stock and bond markets to perform very poorly. Prompted by the high inflation, the Volker Fed raised interest rates aggressively resulting in two closely-timed and very sharp recessions. The early '80s saw a reversal of this trend when inflation fell dramatically, bringing bond yields down - and returns up - while the economy and stock market advanced.

Starting in the late 1990s, the correlation declined precipitously, even going negative for a sustained period that continues today. Investors during the stock market bubble became enamored with technology stocks and the overall prospects for the economy. Equity gains were coupled with a bond market that suffered from increases in real interest rates.

Subsequent to the bursting of the bubble, both markets reversed course. Bonds performed very well as the economy entered recession and the Fed reduced interest rates. Stocks, on the other hand, suffered severe declines as the slowing economy took a toll on earnings. Additionally, there was not a strong inflation problem or disinflation effect driving stock and bond returns in the same direction, as had been the case 15 or 20 years earlier.

Short Term

The short-term behavior of the stock-bond correlation is also highly variable. Figure 3 shows the 20-day correlation between stock market and bond market returns. From this graph it is evident that in early June, when investors and the popular press were discussing how all assets seemed to be going down at the same time, there was indeed an elevated correlation between the stock and bond markets. At that time, the decline in bonds was driven by increases in longer-term real interest rates as investors came to accept the fact that the Fed was not about to ease interest rates any time soon. The stock market was also hit by this same news, contrary to what was experienced in the late '90s when higher real interest rates were driven by a stronger economy.

Implications

Given the movement in the stock-bond correlation, what are the implications for portfolios? The answer to this question is fairly straightforward. When the correlation is high, there is less diversification in the portfolio, as stocks and bonds will tend to move together. When the correlation is low, the opposite is true and considerable diversification exists. Note that we are exploring how diversification affects the overall *risk* characteristics of the portfolio, not the return characteristics. So, in periods similar to what was experienced in the early '80s or during the recent spike last month, a balanced portfolio that includes both stocks and bonds will show less diversification than what we might ordinarily assume.

Conversely, in the early years of this decade, or more recently in mid-May, bonds provided a large amount of diversification to an equity portfolio.

The impact on diversification at various levels of correlation is shown in Figure 4. For a portfolio that is 65% stocks and 35% bonds, the risk changes considerably when the correlation between stocks and bonds moves around.

In previous *Monthly* publications, we discussed how high quality bonds seem to be one of the only diversifying asset classes remaining. Do experiences, such as early June when correlation rose sharply, negate this argument? In other words, given the June episode of stock

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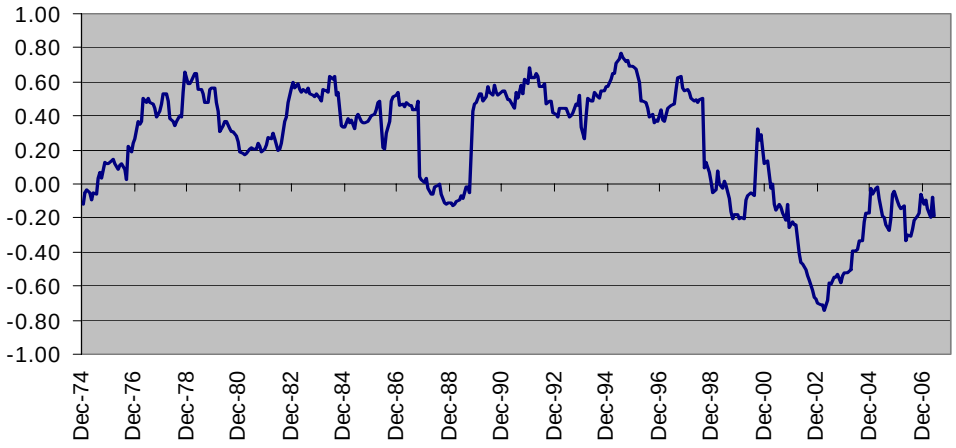
Figure 2: 24-Month Correlation of S&P 500 & Lehman Treasury Index



Sources: Standard & Poor's, Lehman Bros, Stairway Partners

About Stairway Partners, LLC

Stairway Partners was formed to provide our clients (starting with ourselves) with an effective and comprehensive solution for managing their wealth. Our disciplined and rigorous approach comes from our collective knowledge in serving large institutional clients over many years.

Our core investment belief is that asset allocation is the single most important determinant of success in any investment plan. The dominant amount of risk and return comes not from your choice of individual investments but from your asset class mix. Stairway Partners focuses our resources on risk management and asset allocation. This includes building your custom blueprint (investment policy and benchmark) and aligning your portfolio with our investment strategy utilizing the global capital markets.

market weakness coupled with declining bond prices, does portfolio diversification disappear when you need it most?

We would say not. There are many instances when diversification worked just as it should. The first, and perhaps most instructive, was in October of 1987. The correlation between stocks and bonds had been running at a high level. As investors fled from the stock market during this crash, there was a flight to quality and liquidity. Treasury bond prices rallied substantially, dampening the effects of the dramatic decline in equities and providing protection to portfolios. As we have discussed, bonds provided similar benefits during the stock market decline at the start of this decade. More recently, just a few months prior to the early-June high correlation, bonds appreciated in price in mid-March during a period when stocks came under pressure due to fears over sub-prime mortgage problems.

Summary

Whenever risk re-emerges, investors are helped by having diversified portfolios.

Despite the fact that the stock-bond correlation has varied over time, high quality bonds continue to provide a much-needed source of diversification to riskier asset classes. In this environment of generally higher correlations across riskier assets, it is difficult to find another asset class with this kind of diversifying capability. Although high-quality bonds can and do have periods of negative returns, they serve a valuable function of protecting a portfolio when the riskier asset markets turn nasty.

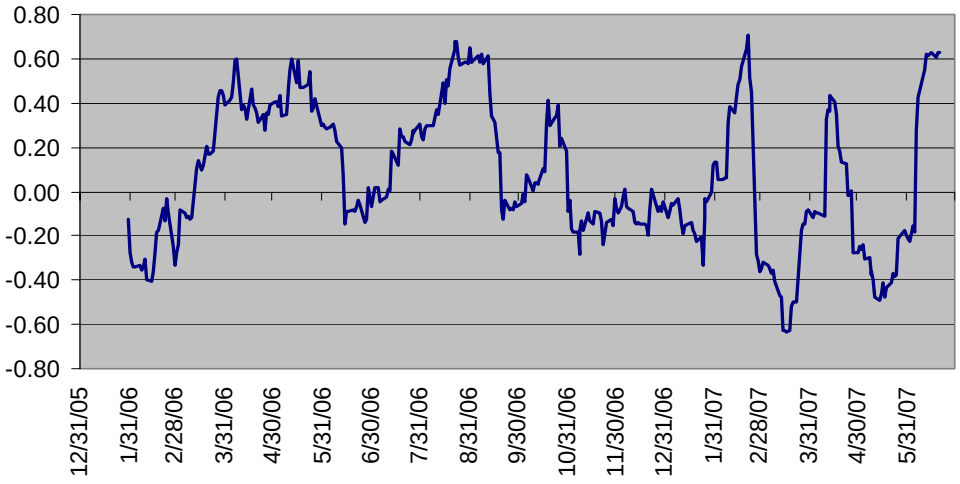
Figure 4	
65% Stocks / 35% Bonds	
Stock-Bond Correlation	Portfolio Risk
0.50	10.7%
0.25	10.3%
0.00	9.9%
-0.25	9.5%

Note: equity risk = 15% , bond risk = 5%

"RISK CHANGES CONSIDERABLY WHEN THE CORRELATION BETWEEN STOCKS AND BONDS MOVES AROUND"

"MORE RECENTLY IN MID-MAY, BONDS PROVIDED A LARGE AMOUNT OF DIVERSIFICATION TO AN EQUITY PORTFOLIO"

Figure 3: 20-Day Correlation of Russell 3000 & Lehman Aggregate Bond Index



Sources: Russell, Lehman Bros, Stairway Partners

Strategy

Asset Class	Expected Return	Hurdle Return	Strategy	Comment
Equities			under	
US	3.2%	8.5%	small under	Exposure slightly below normal
Non-US Developed			small under	Moderately unattractive relative to risk
Eurozone	0.6%	7.7%		
Japan	-9.5%	4.6%		
UK	5.2%	8.9%		
Emerging	-4.4%	10.8%	under	Asset class inadequately pricing risk
Fixed Income				
US Treasury Bonds			neutral	Sector is fairly priced except at longest maturities
2-Year	4.9%	4.7%		
5-Year	5.0%	4.9%		
10-Year	4.9%	5.1%		
30-Year	4.5%	5.3%		
US Municipal Bonds			neutral	Sector is fairly priced
2-Year	3.8%	3.5%		
5-Year	4.1%	3.7%		
10-Year	4.6%	3.9%		
30-Year	7.2%	4.3%		
US High Yield	4.5%	6.9%	under	Spreads over US Treasuries remain too tight
Non-US Government Bonds			under	Yields in some markets too low, especially at longer maturities
Euro 10-Year	4.2%	4.8%		
Japan 10-Year	1.0%	2.1%		
UK 10-Year	5.5%	5.5%		
Emerging Markets Debt	4.1%	7.2%	under	Spreads over US Treasuries remain too tight
Cash	4.7%	---	over	Allocation comes from overpriced asset classes

Currencies	Expected FX Change	Equity Return with Currency	10-Year Bond Return with Currency	
Euro	-5.3%	-4.7%	-1.1%	Euro is somewhat expensive
Japanese yen	7.2%	-2.4%	8.2%	Yen is slightly attractive
UK pound	-6.6%	-1.3%	-1.1%	Pound is somewhat expensive

Notes: **As of: June 30, 2007**

The expected return is our estimate of the annualized return likely to be generated over a 3-year horizon.
The expected returns are expressed in local currencies (e.g., Japanese equity return is stated in yen terms).
The hurdle rate represents the annualized return that an asset needs to generate in order to cover its risk.
Equity Return with Currency (in Currencies section) is the annual return we would expect a US dollar investor to earn from holding foreign equity markets.