

MONTHLY

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CORRELATION & PORTFOLIO MANAGEMENT

Introduction

One of the most significant determinants of risk in a portfolio is the correlation between the constituent assets. But, the notion of correlation is, to many people, not very intuitive or easily grasped. We hope to give a straightforward explanation of what correlation is, how it affects risk, and some specific history and expectations with respect to the correlation between US stocks and bonds.

Correlation is often used to measure the relationship between two assets' prices or returns. The range of values that correlation can take is +1 to -1. When the relationship is strongly positive, correlation will be close to +1. For example, if almost every time the stock market moved up, bond prices also rose, the correlation between stocks and bonds would be nearly 1. Conversely, if stocks strengthening is accompanied by bonds dropping in value, the correlation would be negative, approaching -1 to reflect the inverse relationship. Correlation says nothing about the relative magnitudes of the moves –

stock market returns might be 3 times as large as bond market returns on average – it only tells us about the direction of the relationship.

Relevance

Many investors are aware that correlation has an impact on risk and diversification. Assets with low or negative correlation provide greater diversification benefits; they reduce risk by “offsetting” the riskiness of the other assets in the portfolio.

The impact of correlation on risk is important both in the long term – a benchmark's

riskiness is a function of the long-run correlations among the asset classes – and in the short term – the riskiness of a given portfolio and strategy will change as correlations vary from their long-term levels.

Historical Perspective

Most of our clients have substantial exposure to the US equity and fixed income markets. Consequently, the stock-bond correlation plays a significant role in defining their risk and return characteristics. Figure 1 shows the behavior of the correlation

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CURRENT TOPICS

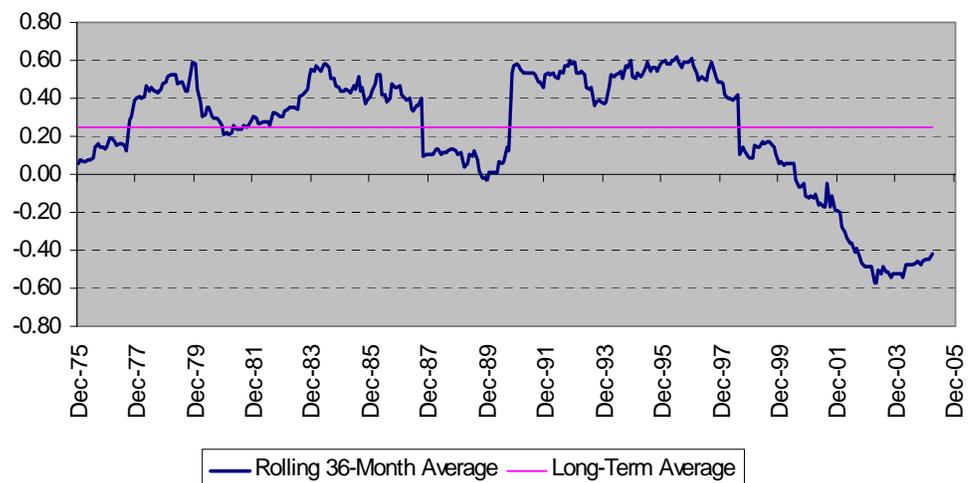
Correlation

- *Relevance*
- *Historical Perspective*
- *Investment Implications*

Expected Returns & Strategies

- *Expected returns for Equities have risen as Global Equity Markets declined*
- *High Yield Bonds underperform but still maintain maximum underweight*
- *Lower rates make Investment-Grade Taxable Bonds more expensive*

Figure 1 - Stock-Bond Correlation



Sources: S&P, Lehman Brothers, Haver Analytics, Stairway Partners

CORRELATION & PORTFOLIO MANAGEMENT - CONT'D.

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between returns in the US equity market and the Treasury bond market contrasted against its long-run average. Correlation was mostly positive, turning negative only recently near the start of the new decade.

The positive relationship between stock and bond returns historically might be explained by any number of factors. One explanation involves the role of inflation in driving returns. During the 1970s and the first years of the 1980s, inflation was rising and volatile. This led to rising interest rates, since bonds had to offer higher yields – i.e., lower prices – to compensate investors for the increased loss of purchasing power over time. The underlying discount rate applied to equities also rose (causing prices to fall), as the increasingly uncertain inflation situation made long-range investment planning by the business community difficult and adversely affected the outlook for profit growth. The end result was lower prices and poor returns in both stocks and bonds.

The reverse occurred in the 1980s and 1990s during the Volcker-Greenspan era, with disinflation and an improving profit outlook, which caused both stock and bond markets to post positive returns.

A look at some of the major market events sheds light on

why correlation moves around its longer-term level. In October of 1987, the stock market crashed and investors fled to the “safety” of Treasury bonds. As a result of the negative stock return and positive bond return, correlation plunged.

The more recent collapse of the stock-bond correlation can be attributed to the stock market bubble and its subsequent collapse. At the end of the ‘90s, so-called investors shifted strongly from bonds to stocks, particularly Internet and tech names. This pattern of positive equity returns-negative bond returns was reflected in correlation beginning to turn negative. The reversal of that trade led to money flows from stocks to bonds, driving the stock-bond correlation below -0.50 by 2003.

Investment Implications

In creating benchmarks, which are the long-term blueprints for our clients, and setting strategy, we need to

understand how correlation affects risk. Figure 2 lays out a hypothetical example: the risks of equities and bonds are assumed to be 15% and 5%, respectively, and the benchmark is composed of 50% in each asset class. When the stock-bond correlation is 0.50, the risk of the benchmark will equal 9.0%. Since the correlation is less than perfect, the risk is somewhat less than 10% (which is the weighted average of 5% and 15%).

However, if the correlation between stocks and bonds falls to -0.50 – about where it has been within the last few years – stock and bond risks tend to offset each other. At the 50/50 benchmark weightings, the risk is no longer 9.0%, but falls to 6.6%.

This effect can also be seen in Figure 3. Given the stock and bond risk assumptions and the 50/50 weights, the chart shows what happens as the stock-bond correlation moves from its minimum

value of -1.0 to its maximum value of +1.0. If stocks and bonds were perfectly negatively correlated, the portfolio’s risk would only be 5% – the same as the risk of a bond-only portfolio even though it contains 50% equities. As the direction of stock and bond market movements becomes more similar and correlation increases, the diversification benefit starts to diminish. Alternatively, when stocks and bonds have perfect positive correlation, the diversification benefit has vanished entirely and the portfolio’s risk is equal to the weighted average risk of these two asset classes.

Our Views

Given the market experience that investors have been through since 1999, we believe that there will be a return to a more normal stock-bond relationship. A painful lesson has been learned about letting prices detach too much from fundamentals (although investors continue

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Figure 2 - Correlation's Affect on Risk		
Assumptions		
	Asset Class Risk	Weights
Equities	15%	50%
Bonds	5%	50%
Affect on Level of Risk		
	Correlation	Overall Risk
	0.50	9.0%
	-0.50	6.6%

Source: 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.

STRATEGY CHANGE: WHEN YIELDS ON TAXABLE INVESTMENT-GRADE BONDS DROPPED SIGNIFICANTLY IN APRIL, WE REVERSED THE PRIOR MONTH'S STRATEGY CHANGE FOR TAX-EXEMPT CLIENTS BY INCREASING OUR UNDERWEIGHT

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to be willing victims of “the herd mentality”). We would expect that, over the long term, stocks and bonds will continue to share some common return components. For instance, when economic growth is strong, real returns may be high in both stocks and bonds. Stocks may benefit from strong earnings growth while bonds produce good returns from high real rates of interest.

Recent experience differs from this long-term example. In 2003, strong GDP and earnings growth supported excellent equity market returns while bond returns lagged due to expectations that the Federal Reserve would not keep short rates low indefinitely. In addition, year-to-date returns reveal equities weakening, with surprising strength in bonds due to a change in expectations towards lower economic

growth.

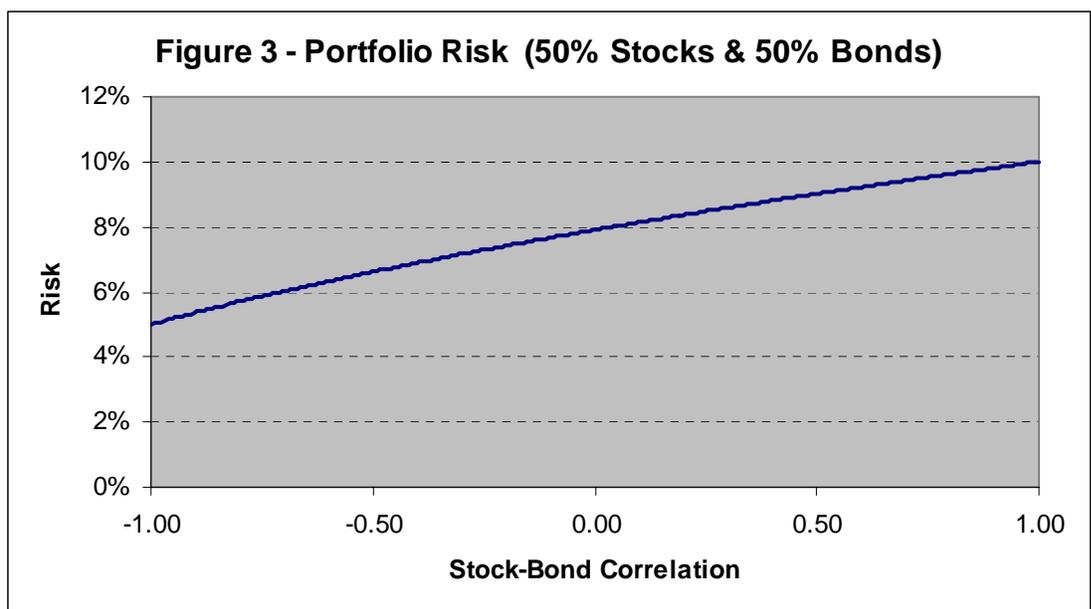
Overall, our longer-term assumption is that the correlation between stocks and bonds will be moderately positive as the effects of the stock market bubble and its bursting fade away.

Summary

Correlation has a significant impact on portfolio risk – the less correlated an asset is, the greater the diversification and risk reduction it offers. This

is critical in creating the proper blend of assets in the investor’s benchmark. As correlation varies from its long-term level, it alters the risk characteristics of a portfolio. Lower correlations produce less risky portfolios in the short run; higher correlations do the opposite. Understanding these movements and how they affect portfolio risk is important in setting strategy and evaluating the riskiness of market exposures.

HIGHER
CORRELATION
PRODUCES
MORE RISK
WHILE LOWER
CORRELATION
PRODUCES
LESS RISK



Source: Stairway Partners

Strategy

Asset Class	Expected Return	Hurdle Return	Strategy	Comment
Equities				
US	6.4%	7.3%	neutral	Slightly overvalued but strategy still neutral
Non-US Developed				Some markets slightly attractive, but offset by unattractive currency
Eurozone	7.6%	6.7%	neutral	
Japan	1.7%	4.3%	neutral	
UK	10.3%	8.4%	neutral	
Emerging	11.1%	12.4%	neutral	Poor recent performance has decreased overpricing
Fixed Income				
US Treasury Bonds			under	Real rates remain too low
2-Year	3.5%	4.1%		
5-Year	3.4%	4.4%		
10-Year	3.0%	4.7%		
25-Year	2.5%	5.0%		
US Municipal Bonds			neutral	Attractive pricing in longer maturities
2-Year	2.7%	3.0%		
5-Year	2.9%	3.3%		
10-Year	3.5%	3.7%		
25-Year	6.1%	4.2%		
US High Yield	4.9%	5.8%	under	Pricing improved with increased spreads, but still unattractive
Emerging Markets Debt	4.5%	6.0%	under	Spreads over US Treasuries remain too tight
Cash	3.8%	--	over	Allocation comes from overpriced asset classes
Equity				
Currencies	Expected Return	Return with Currency		
Euro	-3.3%	4.3%		
Japanese yen	1.7%	3.4%		
UK pound	-4.8%	5.5%		

Notes:
As of: 4/29/2005

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.

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