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PORTFOLIO MANAGEMENT

How Regimes Affect Asset Allocation

Andrew Ang & Geert Bekaert

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Abstract

International equity returns are characterized by episodes of high volatility and unusually high correlations coinciding with bear markets. This article provides models of asset returns that match these patterns and illustrates their use in asset allocation. The presence of regimes with different correlations and expected returns is difficult to exploit w bal all-equity p in an out-of-sampl witched betweer -volatility market, et-timing benefit periods of relat

Internati gh-volatility bear ma well at replicati ause they draw da arket regime when asset returns are, on average, lower and much more volatile than in

normal times. The regimes are persistent, and in the bear markets, asset correlations are higher than in the normal regime.

We show that the presence of regimes in international returns is exploitable in active asset allocation programs. We illustrate how the presence of regimes can be incorporated into two asset allocation programs—a global equity allocation setting (with six equity markets) and a market-timing setting for U.S. cash, bonds, and equity. For global portfolios, the optimal equity portfolio in the high-volatility bear market is very different from the optimal portfolio in the normal regime; for example, it is more home biased in bear markets. For a domestic U.S. portfolio, optimally exploiting regime switches implies portfolio shifts into bonds or cash when a high-volatility bear market regime is expected.

To build a quantitative model for the international asset classes, we incorporated two regimes in the basic capital asset pricing model. Conditional means, volatilities, and correlations in this model depend on which regime prevails at each time. The RS model can produce rich patterns of stochastic volatility and time-varying correlations. The regimes are identified endogenously through the estimation procedure, which provides an easy way for an investor to determine which regime is prevailing at a given time.

The regime-dependent strategies have the potential to outperform static investment strategies because they set up a defensive portfolio in the bear market regime that hedges against high correlations and low returns. Theoretically, the presence of two regimes implies two mean–variance frontiers, one for each regime. The presence of two regimes and two frontiers means that the regime-switching investment opportunity set dominat ntier. For example conditional tangenc ove this trade-off ortfolio. Similarly ad a Sharpe ratio l regime-depe

To illustr es, we used an out-o erformance criterion tegy's Sharpe r o.

In an out-of-sample test of the market-timing model for U.S. equities, bonds, and cash, we found that substantial value could be added when an investor moved assets among cash, bonds, and equity investments. When a persistent high-volatility market hit, the investor switched primarily to cash. Market-timing benefits were large because high-volatility markets tend to coincide with periods of relatively high interest rates.

The results reported here provide a clear demonstration of how active managers can incorporate regime-switching strategies to enhance returns in market-timing models. Our results lead to two robust conclusions. First, one can add value by considering regime switches in global all-equity portfolios; the presence of a bear market regime does not negate the benefits of international diversification. Although portfolios in the high-correlation regime are more home biased, they still involve significant international exposure. Second, an even more valuable situation in which to consider regime-switching models is tactical asset allocation programs that allow switching to a risk-free asset.

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