

Research Abstracts

R. Clarke, H. Silva, and S. Thorley, "The Fundamental Law of Active Portfolio Management," *Journal of Investment Management*, Third Quarter 2006, Vol 4, No. 3, (2006) pp 54-72.

The strategic perspectives and terminology of the fundamental law is a common framework in the practice of active portfolio management. For tractability, fundamental law theory depends on the simplifying assumption of a diagonal covariance matrix of security returns, though the matrices supplied to numerical optimizers are fully populated. We extend the fundamental law of active management to allow for a full covariance matrix and show that the resulting ex-ante (expected) and ex-post (realized) return equations are exact in contrast to the approximate equality of previous derivations. The exactness of ex-post equations allows for performance attribution of realized returns that completely decomposes the return. Because the various fundamental law parameters we define incorporate all the information in the covariance matrix, they should also provide better ex-ante insights as to the sources and limitations of risk-adjusted active return. In addition to the generalization of the fundamental law, we describe a full covariance matrix alpha generation process and add some comments to the concept of implied breadth. The mathematics and practical application of the full covariance matrix fundamental law parameters are illustrated using an EAFE benchmarked portfolio with the 21 countries as individual securities.

R. Clarke, "Risk Allocation and Portfolio Constraints," *CFA Institute Conference Proceedings Quarterly*, March 2006

Conscious consideration of risk allocation must be paired with asset allocation if diversification is to have its full impact on a portfolio. Among the trends in portfolio structuring is the use of hedge funds to find additional sources of active risk premiums by separating active from systematic risk, although data indicate that hedge funds are not entirely free of systematic risk. Other trends for managing risk include economic diversification, alpha-concentrated strategies, and alteration of portfolio constraints.

R. Clarke, H. de Silva, and R. Murdock, "A Factor Approach to Asset Allocation," *The Journal of Portfolio Management*, Fall 2005

The typical asset allocation decision is focused on gaining exposure to systematic market risks such as broad equity, interest rate and credit risk. In addition, investors often explicitly manage their exposure to firm specific characteristics like size, book to market or momentum. For a global portfolio we add another category of exposures that is not correlated with systematic market risks and firm specific characteristics. We characterize these exposures as global market factors as they explain the cross section of returns across individual equity, fixed income and currency markets. We note that portfolios which are constructed to include exposures to each of these three categories of risk and return seem to be more efficient at producing diversified returns than those which are limited to just systematic market risks. Using this factor based approach to asset allocation also results in optimal portfolios that have significantly less exposure to equity market risk than the common institutional portfolio generated using the traditional asset allocation approach.

R. Clarke, H. de Silva, and S. Thorley, "Performance Attribution and the Fundamental Law," *Financial Analysts Journal*, September/October 2005

We operationalize the Fundamental Law of Active Management in the context of a performance attribution system. The attribution system begins with the factor payoffs that portfolio managers and external reviewers commonly use to judge what is being rewarded in the market. We present mathematics that translate regression-based factor payoffs and factor exposures into fundamental law parameters that portfolio managers can employ internally to make strategic decisions. Specifically, we show that signal quality as measured by the information coefficient, and implementation efficiency as measured by the transfer coefficient, combine to explain the realized active return in quantitatively managed portfolios. We validate the math supporting the attribution system using security holdings, returns, and risk-factor exposure data on two S&P 500 benchmarked portfolios for 108 months; April 1995 to March 2004. We include the performance attribution results for both a long-only and a long/short portfolio to illustrate the implementation efficiency advantages of long/short strategies, and comment on several complexities in these real-world portfolios that deviate from the mathematical theory that supports the fundamental law.

R. Clarke, H. de Silva, and S. Sapra, "Toward More Information Efficient Portfolios," *The Journal of Portfolio Management*, Fall 2004

Portfolio constraints can substantially impact the ability of the investment manager to reap the rewards from a stock ranking system. In particular, the long-only constraint imposed in traditional portfolios is one of the more severe constraints in terms of its impact on potential value added, particularly for portfolios benchmarked to a capitalization weighted benchmark such as the S&P 500. The long-only constraint can reduce the effectiveness of the manager's information by 50% or more. This loss in the value of the manager's information can be avoided to a great degree by eliminating the long-only constraint or by creating a market neutral portfolio with a derivatives overlay to restore market exposure. However, using such an aggressive application is not required to increase the information ratio. We show that for investors desiring a less aggressive application, much of this loss in the value of the manager's information can be recovered by relaxing the long-only constraint by a minimal amount. The information ratio can be increased considerably using only underlying securities by allowing modest short positions and using the cash generated to purchase an equivalent amount of long positions, thus maintaining full market exposure.

R. Clarke, H. de Silva, and S. Thorley, "Portfolio Constraints and the Fundamental Law of Active Management," *Financial Analysts Journal*, 2002

The expected value added in an actively managed portfolio depends on both the manager's forecasting skill and the manager's freedom to take appropriate positions in securities that reflect those forecasts. The "fundamental law of active management" gives the maximum expected value added for an actively managed portfolio based on the forecasting ability of the manager and the breadth of application. The fundamental law does not, however, address the impact of portfolio constraints on potential value added. Constraints such as no short sales and limits on security concentration impede the transfer of information into optimal portfolio positions and decrease the expected value added.

R. Clarke, H. de Silva, and B. Wander, "Risk Allocation vs. Asset Allocation," *Journal of Portfolio Management*, Fall 2002.

Most investors are exposed to both systematic and active risks in their portfolios. Systematic risks stem from consistent exposure to market wide factors and are usually associated with market-wide risk premiums. Active risk comes from actively managing underlying security and/or systematic risk exposures. Traditional long-only investment strategies are usually dominated by systematic risk whereas alternative investment strategies typically have larger amounts of active risk relative to systematic risk. A risk allocation framework that explicitly differentiates between these two sources of risk enables investors to improve the risk / return profile of their portfolios. Utilizing such a framework also enables investors to better incorporate non-traditional or alternative investment strategies into portfolios by characterizing them in terms of their systematic and active risk in contrast to thinking of them as a separate asset class.

H. de Silva, S. Thorley, and S. Sapra, "Return Dispersion and Active Management," *Financial Analysts Journal*, 2001.

The cross sectional variation of U.S. stock returns has been historically high over the last two years. High dispersion in security returns has lead to correspondingly high dispersion in fund returns. For example, the cross-sectional standard deviation of returns on actively managed domestic equity mutual funds was 24 percent in 1999, compared to only 5 percent in 1996. High dispersion in fund performance is a natural result of increased security return dispersion, and has little to do with changes in the informational efficiency of the market or the range of managerial talent. The dramatic increases in return dispersion motivate a re-examination of traditional fund performance methodologies that implicitly assume constant dispersion. We show how performance benchmarking can be extended to incorporate the information imbedded in return dispersion, as well as the return mean, by correcting fund alphas with a period and asset class specific measure of security return dispersion.

H. de Silva, "Controlling Regret for Fund and Profit" *The Journal of Index Issues in Investment*, January-March 2000.

Stocks can turn hot or cold very fast; factors affecting stocks may stay profitably warm for a long time. Numerous factors such as projected earnings or book-to-price go in and out of favor in the stock market, but nevertheless tend to have persistent and predictable effects on stocks in the S&P 500 for extended periods. The author reports good success applying this phenomenon for outperformance in an enhanced index portfolio.

R. Clarke and M. Statman, "Bullish or Bearish?", *Financial Analysts Journal*, 2000.

The sentiment of newsletter writers, whether bullish or bearish does not forecast future returns, but past returns and the volatility of those returns do affect sentiment. High returns and the volatility of those returns do affect sentiment. High returns over four-week periods are associated with a migration of newsletter writers from the bearish camp into the bullish camp. High returns over periods of 26 and 52 weeks are associated with "nervous bullishness" - a migration of newsletter writers from the bearish camp into both the bullish and correction camps. High volatility, instead of scaring newsletter writers into bearishness, reduces the effects of

both positive and negative returns on sentiment. Also, contrary to a popular hypothesis, the crash of 1987 had no significant effect on the pattern of forecasts.

R. Clarke and M. Statman, "The DJIA Crossed 652,230," *The Journal of Portfolio Management*, Winter 2000.

The DJIA, like most indexes, is a capital index. It excludes dividends. The DJIA was initiated in 1896 and 40.94 and reached 9,181.43 by the end of 1998. The authors show that a wealth DJIA, an index that accounts for reinvestment of dividends, would have reached 652,230.87 by the end of 1998. Adjusted for inflation, the wealth DJIA would have reached 31,469.30.

R. Clarke and M. Tullis, "How Much International Exposure is Advantageous in a Domestic Portfolio?," *Journal of Portfolio Management*, Winter 1999.

The answer to how much international exposure is advantageous in a domestic portfolio depends on what the investor assumes about the long-run risk and expected return of the foreign assets and currency exposure, and on the investor's risk/return penalty. The analysis here begins with the investor holding a core position in foreign assets to minimize the risk of the portfolio. Using estimates of volatility and correlation from market history, the authors suggest that a long-run allocation of 20% to 30% in foreign equity would be reasonable. The investor may be enticed to deviate from this core allocation depending on the expected relative returns of domestic and foreign equity and on the expected currency return.

R. Clarke, H. de Silva, and G. McMurran, "The Use of Derivatives in Managing Equity Portfolios," *Equity Portfolio Management*, 1998.

This chapter discusses some of the common strategies available using three different derivatives contracts: index swaps, futures and options. The first section outlines linear payoff strategies using swaps and futures. Put and call options, along with other combination strategies which have non-linear payoffs, are also reviewed. The typical framework used to price options along with its limitations is discussed in the final section.

R. Clarke and H. de Silva, "State-Dependent Asset Allocation", *The Journal of Portfolio Management*, Winter 1998.

The traditional mean-variance solution to the asset allocation decision requires estimates of long-run risk and expected return, and produces an efficient frontier of risk/return choices. The authors demonstrate that if the same long-run estimates are generated by combining separate states of the world with differing estimates of risk and return, the investor can use this information to alter the benchmark portfolio allocation in an efficient way in each state. When this state-dependent information is used to alter the investor's benchmark allocation, an expanded opportunity set of risk/return possibilities can be created. Capturing this expanded set requires the investor to shift the portfolio allocation in response to the state-dependent risk/return estimates, however. This investment opportunity set cannot be captured by holding a static mix in the portfolio across all states.

R. Clarke, "Tactical Asset Allocation as a Stand-Alone Asset", *Derivatives Quarterly*, Spring 1997.

The popularity of tactical asset allocation has grown apace with the derivatives markets in the last ten years. Derivatives provide low-cost ways to shift portfolio allocations among stocks, bonds and cash without having to buy or sell individual securities. The author argues that TAA may be considered as a stand-alone strategy or separate asset, with positive value-added, so that it improves an investor's risk/return trade off.

R. Clarke and H. de Silva, "Variables Cloud Investor's Minds" *Pensions and Investments*, December 1997.

Equity investors are often forced to make complex tradeoffs between a number of desirable individual characteristics because there are few stocks, if any, which possess all the best features. However, it is possible to construct a diversified portfolio of stocks that possess the most desirable characteristics even though no single security is completely satisfactory. Portfolios constructed in this way can outperform index funds while maintaining a similar risk profile.

R. Clarke, "The Use of Options and Futures for Tactical Asset Allocation", *Handbook of Derivative Instruments 2nd Ed*, ed. R. Dattatreya, Irwin, New York 1996.

Options and futures provide a cost-effective way to implement tactical changes in asset allocation. In the world's major stock and bond markets, options and futures generally provide a less expensive alternative for changing broad market exposure than trading individual securities. There are three principal uses of options and futures in tactical asset allocation: creating additional market exposure, hedging existing market exposure, and structuring automatic, market-driven changes in market exposure. The use of futures and forwards generally produce a symmetric impact on the return profile of a portfolio while options produce asymmetric effects.

R. Clarke and M. Kritzman, "Managing Currency Risk: Concepts and Practices," *Association for Investment Management Research*, Charlottesville, VA 1996.

This monograph focuses on the currency management decision from an investor's perspective. The sections cover basic foreign exchange concepts and conventions, risk minimizing hedge ratios and active management for both risk and return.

R. Clarke, S. Krase and M. Statman, "Tracking Errors, Regret and Tactical Asset Allocation," *Journal of Portfolio Management*, Spring 1994.

Optimization with respect to tracking errors is rooted in a framework where investors are averse to the pain of regret. Regret comes when decisions to deviate from the benchmark turn out badly. Tactical asset allocation involves deviations from a benchmark portfolio and therefore may lead to regret. Tactical asset allocators can optimize allocations given the conflicting desires to maximize positive tracking errors and minimize regret.

R. Clarke and M. Statman, "Growth, Value, Good, and Bad," *Financial Analysts Journal*, November/December 1994.

The growth-value and small-large scores are popular, but they suffer from two deficiencies: They are not grounded in theory, and they lack clear definition. Shefrin and Statman offered a remedy in a theory in which the quality scale - the scale that separates good companies from bad - plays a central role. Here, the ratings in the Fortune survey of company quality are used as direct measures of perceptions of company quality and a proxy for the Fortune quality ratings is constructed from the BARRA, Inc., list of company characteristics. This quality scale has applications in style selection and style rotation.

R. Clarke, M. FitzGerald, P. Berent and M. Statman, "Required Accuracy for Successful Asset Allocation", *Journal of Portfolio Management*, Fall 1990.

How accurate must an asset allocator be to beat an investor who buys and holds stocks? What is the relationship between accuracy and information? And what are the trade-offs between accuracy in bull markets and accuracy in bear markets? In this article, the authors try to answer these questions about asset allocation.

R. Clarke, M. FitzGerald, P. Berent and M. Statman, "Diversifying Among Asset Allocators," *Journal of Portfolio Management*, Spring 1990.

Investors who diversify among asset allocators whose models contain equal amounts of information, but are not perfectly correlated, reduce risk without reducing expected return. However, investors who diversify among asset allocators whose models contain unequal amounts of information also reduce risk, but at the price of moderating expected return.

R. Clarke, M. FitzGerald, P. Berent and M. Statman, "Market Timing with Imperfect Information," *Financial Analysts Journal*, November/December, 1989.

Can money managers beat the market through market timing? A market timer who follows optimal rules can expect higher returns and lower risk than a buy-and-hold stock investor. Even modest amounts of information can bring substantial advantage.