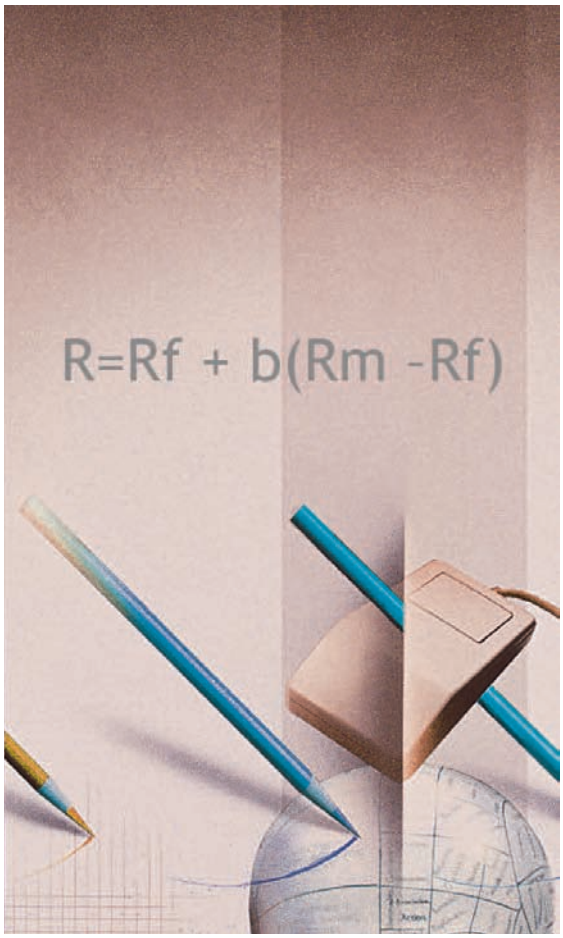


BNY MELLON℠
ASSET MANAGEMENT

Quantitative Investing: A Philosophical Perspective of the Last 35 Years

By

Thomas F. Loeb
Chairman and Co-Founder

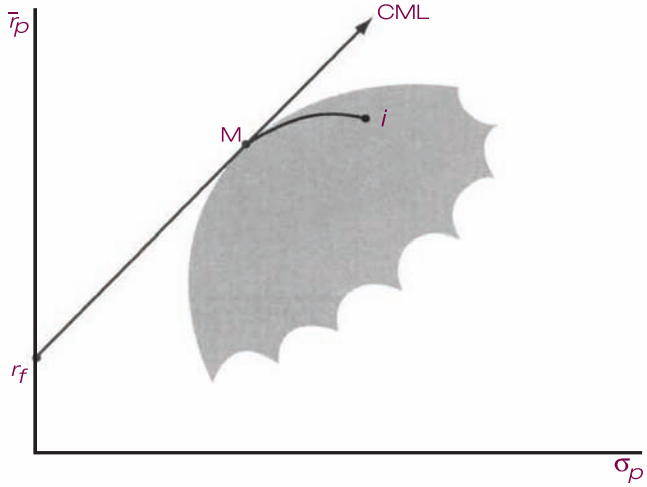
MELLON CAPITAL® MANAGEMENT

AN ACADEMIC INTRODUCTION

Investing has always required quantitative thinking. But the term "quantitative investing" had its theoretical roots in the academic halls of the mid-1960s. Quantitative investing was the scientific approach to rationalizing the "art" of investment management. The quantitative analyst would construct a model of how the world worked and subsequently test it. No casual empiricism, in which any number of possible explanatory factors might be tested at random to determine which worked best in the past, would be tolerated. Quantitative investing was the beginning of a serious effort to apply process engineering to the institutional investment world.

The 1960s were a wellspring for theoretical innovation in investment finance. Two Nobel Prize winning financial economists developed new methods of modeling return and risk. Harry Markowitz formed a model for diversification by exploring the correlation of various assets in order to minimize risk once having estimated their expected return. Bill Sharpe authored an approach to assessing the forward-looking trade-off between expected return and risk called the Capital Market Line Model (Exhibit 1). By the end of the '60s, these "efficient market" proponents developed a sophisticated theory to explain the practical behavior of capital markets. The investment management "guild," long entrenched, was to be replaced by the academics' index fund.

Exhibit 1 – The Capital Market Line Model



Source: Sharpe, Alexander and Bailey, Investments, 1995, p. 288

THE '70S: REBELLION FROM TRADITION

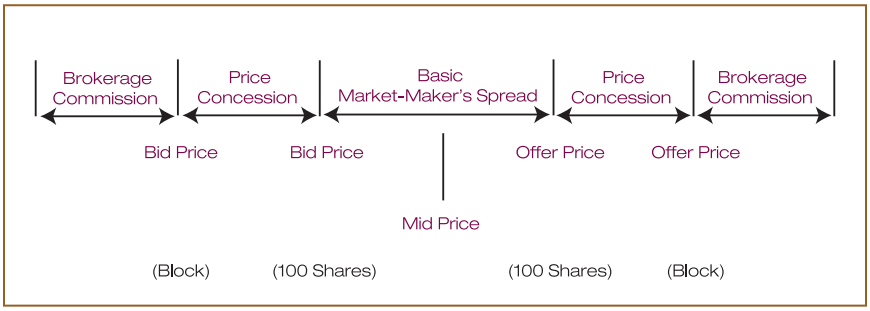
Wells Fargo Bank was a hotbed of investment ideas as the decade of the '70s opened. They wanted to take "the theory" public by offering a "closed-end" index fund in 1971. Blyth, Eastman Dillon, the investment bank hired at that time to represent that closed-end fund,

Initially published June 2007

was to market this radical index fund idea to the institutional investing world and ultimately assigned me to the task. The idea was too new and too radical. It was viewed as "un-American" and a "formula for mediocrity" versus those who could pick stocks. The rest is history, as they say. With perhaps $3 trillion in assets, today's index funds encompass as much as 15% of all managed investment funds. In 1973, after moving out West to work at Wells Fargo Bank, I became the portfolio manager of the first S&P 500® index fund, with $1.5 million in assets. At that time, Bill Fouse and I became friends and then partners when we took the idea of starting Mellon Capital to Mellon Bank in 1983.

As the fund grew slowly, it occurred to me that by using these "efficient market" ideas, it was possible to revolutionize equity trading! By trading stocks in "portfolios," instead of one at a time, the cost of trading could be substantially reduced. This was true because there was far less price volatility at the portfolio level versus individual stocks and thus much less risk. Since the risk was lower, dealers could charge a lower cost to trade (diagrammed in Exhibit 2 in terms of the bid/ask spread) for providing large amounts of liquidity to trade institutional-sized assets. Since very large amounts of capital could be invested or divested at one time this way, the costs to administer these portfolio trades reflected in the brokerage commission fell sharply. As a result, it became easier to convince the brokerage community that non-research, index fund trades should receive substantially lower commission rates.

Exhibit 2 – Components of Trading Cost



Source: T. Loeb, "Trading Cost: The Critical Link Between Investment Information and Results," Financial Analysts Journal, May–June 1983, p. 41

In 1975, "portfolio trading" was renamed "program trading" by the Wall Street market makers because it involved buying and selling what they called a "program" of stocks. The timely introduction of negotiated commission rates, together with the convincing rationale for passive trading, drove down commission costs with unrelenting speed. Between 1975 and the end of that decade, index fund commission costs declined from 17.5 cents per share to 3.5 cents per share. Today, program trading comprises about 60% of the volume of the New York Stock Exchange.

The "new financial theory" taught us a great deal about diversification and risk, but how could we produce reasonable return expectations? For those, we had to look far back to 1926 and J. B. Williams's *Theory of Investment Value*. Williams simply told us that expected return was produced by estimating the forward-looking earnings and dividends of a stock in perpetuity. In 1973, Bill Fouse persuaded the security analysts at Wells Fargo to gather consensus forecasts of earnings for about 200 companies from Wall Street analysts. Then, with some simplifying assumptions, a forward-looking projection of earnings and dividends was cast into Williams's Dividend Discount Model (Exhibit 3). The expected return of each stock was calculated by determining the rate by which this cash flow stream should be discounted back to its current price. It was then possible to market-weight each estimate so that the expected return on the entire stock market was forecast.

Exhibit 3 – The Dividend Discount Model

$$P = PV = \frac{D_1}{1+R} + \frac{D_2}{(1+R)^2} + \ldots + \frac{D_N}{(1+R)^N}$$

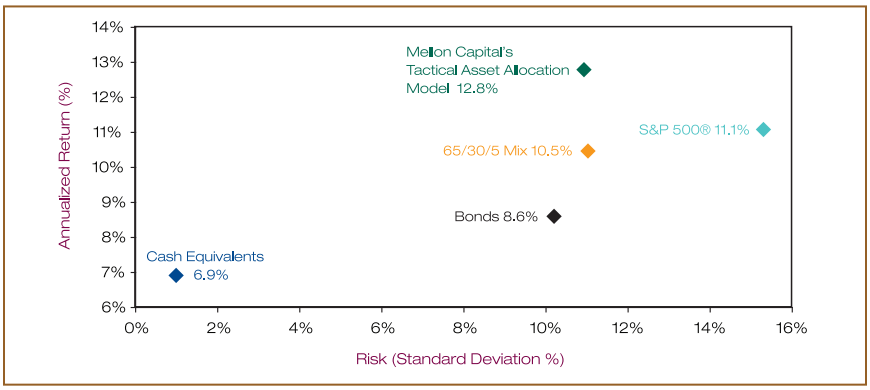
P=price PV=present value D_1=dividend first year D_2=dividend second year, and R=discount rate, or expected return

Source: W. L. Fouse, "Allocating Assets Across Country Markets," Journal of Portfolio Management, Winter 1992, p. 21

This ability to estimate the expected return was the key to tactically allocating assets between stocks and bonds. Over the next 30 years, the forward-looking risk premium, or the difference between the expected returns of the stock market and bond market, would play a pivotal role in producing returns eclipsing the stock market return itself by perhaps 2.5% per year on average while incurring only 70% of the stock market's risk (Exhibit 4). The "Fouse Model" integrated the expected-return probabilities of the stock and bond markets together with investor risk aversion with the goal of providing the optimal asset allocation mix. In 1973, this model was revolutionary because it provided a recommendation that could be implemented in minutes, instead of the cumbersome "committee approach" which required days or weeks of protracted debate as the window of opportunity closed.

The issue of market liquidity has always had profound implications for large-scale institutional investing. But the issue of measuring and forecasting these costs became controversial during the bull market of the early 1980s. The cost of that liquidity was an important gauge in deciding whether the return expected from investing in a stock or a portfolio of stocks might be substantially eliminated by the cost of accumulating the desired position. Having been a researcher and portfolio manager for the prior decade, it seemed logical to me to estimate the cost of market liquidity by testing the people whose working lives depended on it—the market makers! This approach to estimating trading costs was to elicit from the dealers their market quotations to buy or sell increasingly larger amounts of individual stocks, from the very liquid, large-capitalization companies to the least liquid, small-capitalization companies (Exhibit 5). In this study, *Trading Cost: The Critical Link Between Investment Information and Results*, three important implications were drawn: First, trading costs were far higher than anyone expected, especially for small cap stocks! Second, small cap managers should limit the size of the assets they manage. Third, executing block trades requiring dealer capital was a high-cost approach to the problem, useful perhaps only to those who were trading on "fast information."

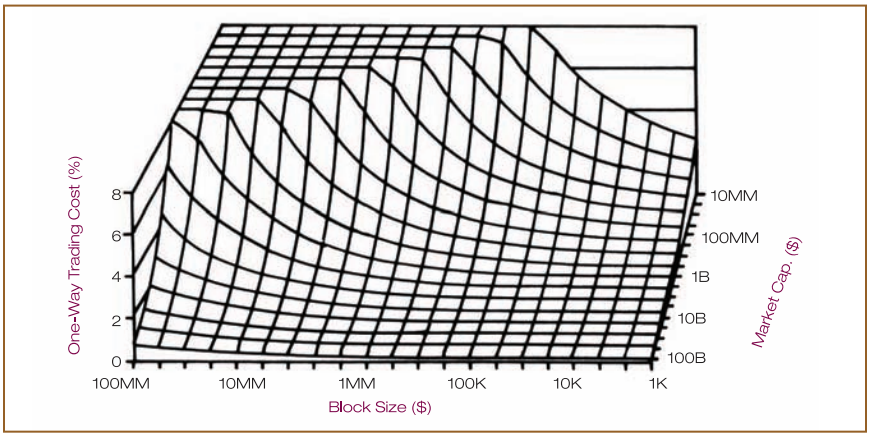
Exhibit 4 – Tactical Asset Allocation Strategy Net of Fee Performance, 1973–2006



Source: Mellon Capital Management Corporation, See Disclosure Statements

In subsequent studies, Wayne Wagner exhaustively measured the cost of market liquidity for millions of institutional trades. He found that the cost increases when the trade size as a percentage of a company's daily trading volume rises. He also confirmed that the cost of trading was higher than investors commonly thought, due to the existence of large opportunity costs.

Exhibit 5 – Trading Cost: The Critical Link Between Investment Information and Results

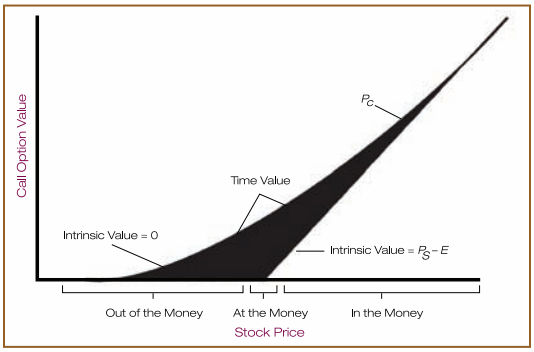


Source: T. F. Loeb, "Is There a Gift from Small Stock Investing?" Financial Analysts Journal, January–February 1991, p. 42

THE '80S: DERIVATIVES TRADING AND MARKET VOLATILITY

The turbulent bull market of the 1980s presented its share of market liquidity-enhancing investment vehicles. The introduction of index options and futures stemmed from the groundbreaking 1974 research of professors Fischer Black and Myron Scholes. Their famous options pricing model permitted us to value and trade these instruments, which were viewed as "derivatives" of diversified portfolios of stocks, as they comprised published indices (Exhibit 6). These instruments traded at one-tenth of the cost of a comparable "program trade" of index fund stocks. Huge equity and fixed income exposures, long and short, could be inexpensively implemented so that investors could reflect their forecasts in their portfolios with greater speed.

Exhibit 6 – The Black-Scholes Options Pricing Model



Source: Sharpe, Alexander and Bailey, Investments, 1995, p. 695

Futures and options instruments were also used as "synthetics," vehicles that could turn a fixed income portfolio into an actively managed, equity return strategy. By taking equity exposure using S&P 500® index futures, for example, and investing the collateral in high yielding, short-term, fixed income instruments, it was possible to enhance market returns. Since S&P 500 index futures are often priced to reflect a lower return on the underlying collateral, an actively managed fixed income strategy can potentially boost the return of the combined fixed income collateral and equity exposure above the S&P 500 index. In 1982, this was the first example of transporting the extra value from one market to another. It was the forerunner of a wide variety of investment strategies that are today commonly known as alpha transportation strategies, which seek to separate the market risk of an investment from the skill-based, security-selection component.

Inevitably, however, the technological advances provided by the derivatives markets would lead to enormous concerns regarding market volatility, liquidity and fair play with regard to small investors. Government regulators, Congress and the media wondered aloud whether these new technologies amounted to sound investing or alchemy. Many investment professionals regarded these instruments and strategies as a "side game" even as their trading volumes met and exceeded underlying stock trading activity.

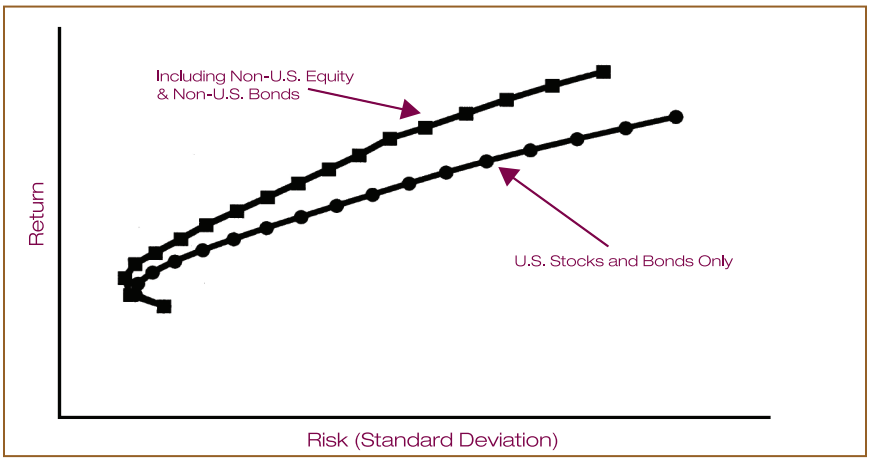
As program trading volumes soared in the mid-'80s, the House of Representatives' Finance and Telecommunications Subcommittee, chaired by Edward Markey, (D-Mass.), held numerous hearings to investigate the sources of market volatility, systemic risk and possible fairness issues in connection with institutional, derivative and program trading. Given my strong commitment to these important innovations, I was asked to testify and present the best case for them. My testimony emphasized the economic benefits for individuals in pension plans and mutual funds as well as their favorable implications for market efficiency.

Then, on that fateful day of October 19, 1987, came the famous market break stemming from overvaluation and selling pressure generated by institutional investors executing portfolio insurance strategies. At that point, the legislators had enough ammunition to require significant policy changes to the market mechanism. Working with the Brady Commission, the committee instituted so-called circuit breakers, which gave traders a chance to slow down the execution process when the stock market ran fast in periods of sharp decline. This ultimately served to calm the nerves of an anxious public and to reduce very short-term market volatility by halting trading.

THE '90S: GOING GLOBAL AGAIN!

Toward the end of the 1980s, there was a renewed interest in global investing. American pension funds had their first significant foray into international investing in the mid-1970s after being advised of the merits of international diversification (Exhibit 7). They proceeded to suffer generally under the worldwide equity market doldrums stemming from the oil price-induced stagflation of the late '70s and early '80s. It was not until the early 1990s that well-known consultants began to recommend 10% to 25% of a portfolio's equity allocation to the international equity markets.

Exhibit 7 – Globalizing Your Opportunities



Source: T. F. Loeb, "Global Investing: The Strategy and Outlook," address to financial analysts, Singapore, August 21, 1998

The 1990s were a decade of rapid growth in global investing by Americans who theretofore had been decidedly insular in their thinking. In developing Mellon Capital's Global Asset Allocation Model, there were extensive challenges to overcome. Recognizing the limitations in cross-border investing, we at Mellon Capital held firmly to the view

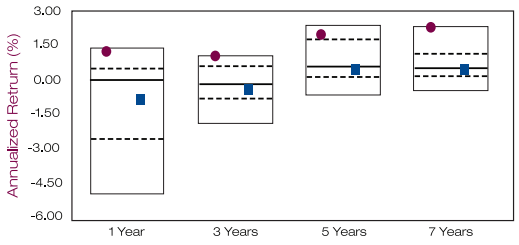
that capital markets were segmented and that local investors set the valuation of equity and fixed income asset classes. Our global model, therefore, was largely dependent upon the local risk premium between the expected return of stocks versus bonds in each country's market. Second, when consensus forecasts of earnings finally became available in 1988, there were no more than two analyst estimates reported for each company rather than the typical 10 estimates on each U.S. company. Third, the currency risk and return had to be explicitly forecast.

Developing techniques to master the global economics as well as managing a global organizational thrust became the principal endeavor for the decade. Tom Hazuka, Mellon Capital's chief investment officer, developed a conceptual model for currency valuation. He reasoned that currency returns depended on real interest rate differences between country markets. He then tested the notion and found the results overwhelmingly positive in his 1994 article, *A Valuation Approach to Currency Hedging*. From 1995 to 2006, this currency strategy has been the most consistent, positive return investment strategy Mellon Capital's research has produced in the past 35 years (Exhibit 8).

As the 1990s drew onward and into the new millennium, we recognized that world stock and bond markets had become more integrated. For that reason, our research team incorporated a more balanced set of valuation factors by progressively employing equity-to-equity market and bond-to-bond market valuation in addition to our equity to bond and currency sources. They found that adding information sources with low correlation to one another produced a more consistent and predictable positive return pattern over the long term. For most of the decade, investors shackled the global strategy with constraints. These investors prohibited us from underweighting the equity position by more than a country market's weight in the chosen benchmark. Thus, Australia, with 2.4% of the weight in the MSCI global equity benchmark, could, at maximum, be underweighted by only that percentage. In contrast, the U.S., with about 52% of the weight, would be permitted a much greater underweight position when it was judged to be extremely overvalued. Furthermore, investors would not allow a currency hedge position unless there was an equivalent underlying equity or fixed income position. We found that these constraints led systematically to lower returns and greater risk than an unconstrained strategy.

Exhibit 8 – A Distinguished Track Record

All Currency All Hedge Composite Universe
Ended December 31, 2006



	Return (%)	Return (%)	Return (%)	Return (%)
Mellon Capital Representative Account Return (Gross of Fees)*	1.25	0.97	1.94	2.23
Universe Average Annualized Return	-0.78	-0.40	0.50	0.39

*The Mellon Capital Representative Account Return is the gross of fee performance of Mellon Capital's longest-running currency portfolio which is a representative account within the Active Currency Strategy Composite and is considered supplemental information. See Performance Disclosure Statements for the Active Currency Strategy Composite. The net of fee performance of the Mellon Capital Representative Account for 1, 3, 5 and 7 years is 1.17%, 0.86%, 1.88% and 2.12% respectively. Net of fee performance is not available for the Universe Average Annualized Return.

Source: ©Mellon Analytical Solutions, 2006.

THE MILLENNIUM: ABSOLUTE RETURN AND THE DRIVE FOR ALPHA

The year 2000 brought with it the sharpest market decline since 1973–1974. Stemming from extreme overvaluation, the ensuing decline was deep. It caused investors to set their equity return expectations at relatively low levels. Pension, endowment and individual investors felt that their investment return objectives could not be met with traditional equity and bond exposures. Consequently, a headlong movement toward leveraged absolute return strategies began in earnest. One of the approaches that was used to pursue the consistent positive return performance that absolute return strategies require was to diversify effectively across a number of different portfolio strategies. Funds of hedge funds and multistrategy hedge funds combine a number of single strategies with very low correlation in a limited liability vehicle. Many of these hedge funds are employing leverage to amplify their investment returns in order to meet their investment goals. They also permit short selling in order to take advantage of the full range of information available.

Investors have also broadened their range of asset class investments with the goal of gaining flexibility and reducing risk. The hedge fund phenomenon has managed to reduce risk substantially through effective diversification of return sources. Equity and fixed income, the traditional asset classes, generally have very low return correlation with strategies such as currencies, duration neutral bond, market neutral equity and commodities, to name a few. Portfolio construction today focuses on the blending of asset classes, and considers their risk in a large set of dimensions. Risk is also packaged effectively within a specified "risk budget" that explicitly pairs their absolute return expectations,

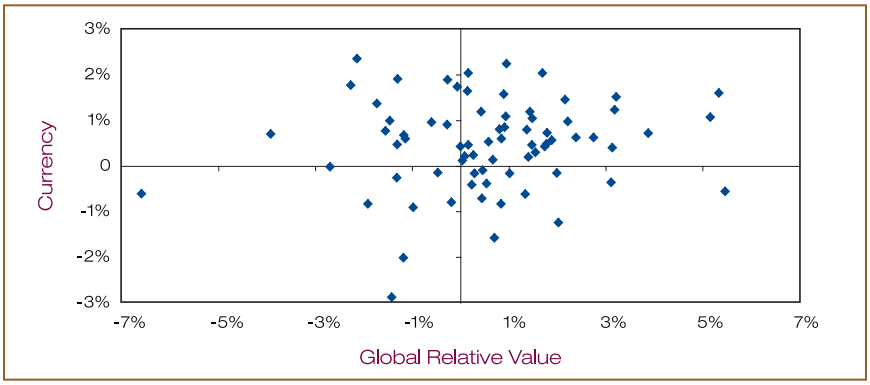
so-called alpha, with a measured amount of risk, unrelated to the strategy's market risk, or so-called beta exposure. When we separate alpha from beta, we are compensating professional managers for their skill and not simply for assuming market exposure (inexpensively done through S&P 500 futures or an S&P 500 index fund).

Disentangling a portfolio manager's exposure to a particular market from his or her security selection ability is a difficult task. Certain global, multi-strategy managers, like Mellon Capital, will make market bets actively, in addition to a broad set of relative value bets. We view all of these as an alpha-producing process in contrast to those who maintain market exposures passively. Using this process, the sources of alpha have historically retained very low correlation with one another. Specifically, the currency alpha source had a correlation of 12 percent with Global Relative Value over the past six years of operation as illustrated in the wide dispersion of datapoints in Exhibit 9.

This risk-lowering aspect of the strategy occurs because rising interest rates have a positive effect on a currency's attractiveness and a negative effect on its fixed income market. Fixed income has a substantial impact on the equity versus fixed income (risk premium) bets we take in the global relative value component of our global absolute return strategies. In other words, if short-term interest rates rise in a particular country, the currency generally becomes more attractive. At the same time, assuming there is a parallel shift in the yield curve, its longer-term bonds become less attractive. Furthermore, this shift in the yield curve may reduce the expected risk premium between stocks and bonds, causing stock prices to fall as well. This may partially explain why the currency and global relative value information sources appear to have such low correlation.

The quest for alpha has turned up the heat everywhere as investors focus on separating skill from passive market exposures. Can you really find managers with sustainable alpha? For those managers who appear to have skill, I think the relevant question is: If you are an alpha winner, who is the alpha loser?

Exhibit 9 – Currency vs. Global Relative Value (2/1/2001 – 3/31/2007)



Source: Mellon Capital Management Corporation

Mellon Capital's Global Alpha Strategy, for example, has two major themes: Global Relative Value, and Currency. In Global Relative Value, the risk premium between the expected return on stocks versus bonds in an individual country market is measured. When investors are fearful, they overreact and drive prices down to an undervaluation extreme creating an opportunity for others to profit at their expense. Alternatively, when they overreact with enthusiasm for stocks, the risk premium narrows causing them to lose again as they continue to drive prices higher in an already overvalued market. When considering the valuation of individual equity and bond markets, local investors may demonstrate a preference for their own stocks or bonds. Their home bias may be the cause for loss since they are reluctant to consider investing in more undervalued global markets.

Currency markets are especially interesting because the largest participants, namely central banks and corporate hedgers, demonstrate virtually no interest in profit maximization. They simply desire to implement monetary policy and to hedge accounting earnings, respectively. The "carry trade" is an example of how central banks implementing accommodative monetary policy lose by funding the investment of profit maximizing managers who sell short the currencies of lower yielding countries so that they might purchase the currencies of high yielding countries.

Investment managers are constantly researching new areas for producing alpha. There are many exciting new trends to explore. Once you have found your alpha winner, it's a good idea to temper your enthusiasm with reasonable expectations of alpha!

In 35 years of managing investment capital and investment professionals utilizing quantitative investment strategies, 22 as chief executive officer of Mellon Capital, I have learned that common sense and fundamental, economic thinking are unquestionably the keys to success. I remain convinced that the rigorous application of quantitative approaches to investing will provide a better understanding of the investment process and increasingly better investment results.

Disclosure Statements

TACTICAL ASSET ALLOCATION

ASSET HISTORY Period	Firm Assets (including Overlay and SLP) ($MM)	Firm Assets (excluding Overlay and SLP) ($MM)	TAA Fund Fund ($MM)	GROSS PERFORMANCE RESULTS Period	TAA Fund	Benchmark
2006	$174,948	$144,121	$977	2006	16.46%	10.98%
2005	142,007	117,324	1,072	2005	5.43	5.47
2004	131,528	104,951	1,242	2004	11.78	9.55
2003	112,136	91,006	1,376	2003	27.08	19.18
2002	83,440	65,934	1,224	2002	-15.26	-9.97
2001	99,352	80,547	2,075	2001	-4.57	-5.91
2000	105,400	87,965	2,345	2000	5.29	-0.02
1999	87,720	86,393	2,504	1999	6.19	10.69
1998	74,376	73,225	2,320	1998	25.93	23.55
1997	64,850	63,524	1,974	1997	27.99	26.33
1996	50,492	49,759	1,093	1996	16.62	14.66

Inception Date: December 31, 1983

The EB Daily Valued Asset Allocation Fund (the "Fund") actively allocates assets across the equity, fixed income, and cash markets of the United States using a proprietary Tactical Asset Allocation Model. Long and short positions in financial futures and options on financial futures may be used to reallocate the portfolio asset mix, to hedge, to obtain exposure, to facilitate trading, to provide liquidity for cash flows, to manage interest rate risk, to seek higher investment returns or for other purposes that facilitate meeting the Fund's objective. The EB Asset Allocation (TAA) Fund consists of five or fewer portfolios since its inception on October 5, 1987. This composite was created in August 1995. The number of portfolios within the composite and dispersion calculations are not shown for periods during which the composite contained five or fewer portfolios. Performance from December 31, 1983 to October 5, 1987 is not in compliance with GIPS as performance was based on a single representative account managed using the same investment strategy. Effective September 7, 2004 the Fund moved to daily valuation and the name changed from EB Asset Allocation Fund to EB Daily Valued Asset Allocation Fund. The benchmark is a mix of 65% S&P 500® Index, 30% Lehman Brothers U.S. Long Treasury Index, and 5% Citigroup 30-Day Certificates of Deposit. Benchmark performance is rebalanced monthly.

Lex Huberts, CFA, previous Managing Director, was employed by Mellon Capital from August 1992 until June 2003. An appropriate fee schedule for this strategy is .50% on assets under management. Actual fee schedules may vary depending on account size and active risk target.

ACTIVE CURRENCY STRATEGY COMPOSITE

Period	Gross Return[1]	Benchmark[2]	Value Added	# of Portfolios	Composite Dispersion[3]	Composite Assets ($MM)	Firm Assets (including Overlay) and SLP) ($MM)	Firm Assets (excluding Overlay and SLP) ($MM)
2006	2.37%	0.28%	2.09%	32	2.66%	$8,867	$174,948	$144,121
2005	1.06	0.06	0.99	19	0.54	4,166	142,007	117,324
2004	1.21	0.00	1.21	10	n/a	2,322	131,528	104,951
2003	5.50	0.00	5.50	<5	n/a	1,083	112,136	91,006
2002	1.31	0.00	1.31	<5	n/a	1,265	83,440	65,934
2001	2.12	0.00	2.12	<5	n/a	138	99,352	80,547
2000	3.67	0.00	3.67	<5	n/a	108	105,400	87,965
1999*	0.15	0.00	0.15	<5	n/a	119	87,720	86,393

* Inception Date: September 30, 1999

1 Account weighted total return

2 Twenty-nine portfolios results represent value-added (alpha) measured against a zero benchmark, two portfolios measured against the Citigroup One-Month Treasury Bill, and one portfolio measured against the One-Month LIBOR

3 Dispersion calculation may not be pertinent because multiple portfolios with different active risk targets are included in the composite.

The Active Currency Strategy Composite consists of multiple portfolios that are managed within Mellon Capital's Active Currency Strategy and whose mandates include only the active management of currency exposure (no stock/bond). The strategy is implemented through long and short positions in over-the-counter currency forwards of major developed markets. The composite incepted on September 30, 1999. This composite was created in March 2004. The number of portfolios within the composite and dispersion calculations are not shown for periods during which the composite contained five or fewer portfolios. The Active Currency Strategy Composite consisted of five or fewer portfolios for all annual periods except for 2005 and 2006. The annual performance dispersion is measured by an asset-weighted standard deviation of all the portfolios that were included in the composite for the entire year.

As of December 31, 2006 there were thirty-two portfolios in the Active Currency Strategy Composite, twenty-five of which were denominated in U.S. dollars, three in Japanese yen, two in Canadian dollars, and two in British pounds. Composite performance is calculated using each portfolio's return in its respective base currency since investment decision performance is largely independent of base currency. Sources of foreign exchange rates may be different for certain portfolios within the composite and also between the composite and the benchmark. The returns for the composite represent the value added (alpha) for the account. Actual returns may be materially affected by individual client restrictions.

As of December 31, 2006, the composite benchmark is a combination of the thirty-two underlying portfolios benchmarks, weighted by beginning of period portfolio assets, and rebalanced monthly: twenty-nine portfolios measured against a zero benchmark, two portfolios measured against the Citigroup One-Month Treasury Bill, and one portfolio measured against the One-Month LIBOR.

Lex Huberts, CFA, previous Managing Director, was employed by Mellon Capital from August 1992 until June 2003. An appropriate fee schedule for this strategy is 2.0% management fee per year on assets under management plus a 20% performance fee. Actual fee schedules may vary depending on account size and active risk target.

- Mellon Capital Management Corporation (Mellon Capital) is a registered investment adviser with the Securities and Exchange Commission. Any collective funds presented are maintained by Mellon Bank N.A. and Mellon Capital provides non-discretionary investment advisory services to those collective funds. The firm is defined as Mellon Capital and includes assets managed as dual officers. Assets under management include assets managed by Mellon Capital officers as dual officers of Mellon Bank, N.A. and The Dreyfus Corporation. Any client and account statistics presented include dual officer relationships. Mellon Capital's assets under management include assets managed in overlay strategies ($31.2 billion), as of March 31, 2007.
- Mellon Capital has prepared and presented this report in compliance with the Global Investment Performance Standards (GIPS®). A complete list and description of Mellon Capital's composites is available upon request. Additional information regarding policies for calculating and reporting returns is available upon request.
- This presentation does not constitute an offer or solicitation to any person in any jurisdiction in which such offer or solicitation is not authorized or to any person to whom it would be unlawful to make such offer or solicitation.
- This material (or any portion thereof) may not be copied or distributed without Mellon Capital's prior written approval. Statements are current as of the date of the material only.
- Performance is calculated gross of the client's negotiated investment management fee unless noted otherwise. Performance results reflect income and capital appreciation. Performance results for collective funds have been reduced by fund audit costs and any applicable custody fees. In accordance with Office of the Comptroller of the Currency (OCC) guidance and the Schedule A for each collective fund, please note the following regarding transaction costs: (i) transaction costs, if any, associated with client-specific contributions to and /or withdrawals from certain index collective funds will not be deducted from the collective fund's returns, but rather will reduce those client's returns; and (ii) such treatment of transaction costs differs from the GIPS requirements. Performance is expressed in U.S. dollars unless noted otherwise. Performance results for one year and less are not annualized.
- The following provides a simplified example of the cumulative effect of management fees on investment performance: An annual management fee of 0.80% applied over a five-year period to a $100 million portfolio with an annualized gross return of 10% would reduce the value of the portfolio from $161,051,000 to $154,783,041. The actual management fee that applies to a client's portfolio will vary and performance fees may be available. The standard fee schedules for Mellon Capital's strategies are shown in Part II of Mellon Capital's Form ADV.
- Past results are not necessarily indicative of future performance and are no guarantee that losses will not occur in the future. Future returns are not guaranteed and a loss of principal may occur.
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Tom is a recognized authority on quantitative investment strategies and securities trading research. His investment management career spans three decades. Before co-founding Mellon Capital, he led Wells Fargo's pioneering efforts in index fund management, tactical asset allocation, and enhanced equity strategies between 1973 and 1983. He also introduced equity trading strategies that have been widely accepted by both the investment management and brokerage communities.

Tom received the prestigious Graham and Dodd Plaque for his article "Trading Cost: The Critical Link Between Investment Information and Results." His research results have been reported in Bill Sharpe's Investments textbook, as well as in A Complete Guide to Securities Transactions: Controlling Costs and Enhancing Performance (1989, John Wiley and Sons). He is a noted author of journal articles, including "Is There a Gift from Small-Stock Investing?" published in the Financial Analysts Journal.

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