



Optimal Solutions for Today's & Tomorrow's Markets: MPT & Alternative Investments
A study to determine if the practical and methodical application of MPT and the implementation of hedge fund strategies from firms such as Chapwood CustomHedge¹ might be expected to generate excess returns over traditional methods of portfolio construction.

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Modern Portfolio Theory (MPT) is a method of assisting those concerned with investment analysis, portfolio design, and performance evaluation in expressing quantitatively their views regarding risk and its relationship to investment return. It focuses attention on the overall composition of the portfolio rather than the traditional method of analyzing and evaluating the individual components. The investment manager is therefore able to examine and design portfolios predicated on explicit risk-reward parameters and on the identification and quantification of portfolio objectives.

Financial professionals need more practical methods of solving very sophisticated investment and retirement objectives. Applying MPT techniques combined with one's experience, knowledge, reasonable assumptions and related financial tools can provide solutions (i) to better risk management, (ii) the design of investment portfolios, and (iii) the selection of appropriate investment vehicles and managers.

Simply stated, asset allocation or MPT is the process of selecting a mix of asset classes and the efficient allocation of capital to those assets by matching rates of return and a specified and quantifiable tolerance for risk to an investor's expectation of achieving financial goals. The foundation of MPT rests upon four basic premises.

(1) Risk Aversion

Investors are inherently risk-averse. Investors are not willing to accept risk except where the level of returns generated will fairly compensate for that risk. It's reasonable to assume that investors are more concerned with risk than they are with rewards and must be viewed in quantitative terms, not generic.

(2) Efficient Markets

Most academic and industry research supports the concept that markets, at least in the broadest sense, are reasonably efficient. The nature of an efficient market is such that all participants have the same information regarding the markets in general, and specific issues in particular, at the same time, although they may come to opposite conclusions as to an appropriate price for individual securities. It is, perhaps, ironic that the sophistication of money managers and their virtually instantaneous access to information creates greater efficiency in the marketplace, thereby making above-average returns extremely difficult to achieve.

(3) The Portfolio As The Determining Factor

The third premise is that the focus of attention should be shifted away from individual securities analysis to consideration of portfolios as a whole predicated on explicit risk-reward parameters and on the identification and quantification of portfolio objectives. Today it is more likely that the efficient allocation of capital to specific asset classes will be far more important than selecting the "right" components of any asset class. For example, one must first determine if investing in Domestic Equities is appropriate before deciding to invest in Microsoft stock.

(4) Portfolios Can Be Quantitatively Optimized

The fourth premise for Modern Portfolio Theory is the optimality of portfolio returns vis-à-vis portfolio risk. In other words, for any level of risk that one is willing to accept, there is a rate of return that should be achieved. Quantitative methods are used for measuring risk and diversification, making it possible to create efficient and theoretically optimal portfolios. Portfolio diversification is not so much a function of how many issues are involved, as it is of the relationships of each asset to each other asset and the proportionality of those assets in the portfolio. Understanding how different assets will perform relative to other assets (standard deviations, correlations and covariances) is paramount in making portfolio decisions.

¹ Chapwood CustomHedge Portfolio Advisory Services, LLC

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Study Hypothesis:

- a) MPT can be expected to outperform traditional portfolio constructs
- b) MPT combined with knowledge, experience and reasonable assumptions can be expected to provide superior returns and lower volatility.
- c) Hedge funds, such as those provided by firms such as Chapwood CustomHedge, can contribute materially to excess portfolio returns

Applying MPT methodologies and optimizing portfolios annually will generate greater returns than individual indices or investing in a Classic Portfolio (60% equities; 35% bonds; 5% cash/cash equivalents). Rebalancing quarterly, if allocations are out of balance by some measure such as 3%-5%, can improve performance on the margin.

Assumptions:

Time Horizon: 12/1993 – 12/2009

The beginning time horizon used in calculating the returns, standard deviations and correlations for the first portfolio was from 12/31/1993 to 12/31/2000. The time horizon used for each succeeding portfolio was extended by one year (i.e. for the 2001 portfolio it was from 12/31/1993 to 12/31/2001). There was no attempt in this study to use forecasted returns or performance characteristics.

Selection of Assets and Constraints:

All of the assets below were available for inclusion in an optimal portfolio. The same minimum and maximum constraints (see below) were applied to each portfolio as optimized annually. For example, the Minimum percentage allocated to International Equities was 10% while the maximum permissible was 50%. Each of the subset indices had a Maximum permitted allocation of 50% of the amount allocated to International Equities.

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Selected Assets and Constraints					
Asset	Min Hold	Max Hold	Asset	Min Hold	Max Hold
Cash Equivalents	5.00%	100.00%	Hedge Fund Indices	10.00%	100.00%
90T90 Day Treasury			CSEMN CSFB Eq Mkt		
Bills	0.00%	100.00%	Neutral Idx	0.00%	100.00%
DMM Donoghue			CSHFI CSFB Global		
Money Mkt.	0.00%	100.00%	Macro Idx	0.00%	100.00%
			CSMFI CSFB Long/Short		
Commodities	0.00%	100.00%	Eq Idx	0.00%	100.00%
GLD Gold (London PM)(UA)	0.00%	100.00%			
Domestic Bonds	10.00%	100.00%	International Bonds	10.00%	100.00%
SIC Salomon Cp. Bds. 1-10 Yr	0.00%	100.00%	SW Short World Bonds	0.00%	100.00%
SCS Salomon Cp. Bds. 1-3 Yrs	0.00%	100.00%	BII International Bonds	0.00%	100.00%
STS Salomon Treas 1-3 Yrs	0.00%	100.00%			
SIT Salomon Treas 1-10 Yr.	0.00%	100.00%	International Equities	10.00%	50.00%
SBJ Salomon High Yield Bonds	0.00%	100.00%	ACW All Country World Emg Mkt	0.00%	50.00%
Domestic Equities: Indices.	10.00%	50.00%	CII Intl EAFE	0.00%	50.00%
EI Equity Income SPC S&P 500	0.00%	50.00%	CEE Intl Europe	0.00%	50.00%
Composite	0.00%	50.00%	CFE Intl Far East	0.00%	50.00%
SPU S&P Utilities			EMF Emerging Markets	0.00%	50.00%
Index	0.00%	50.00%	Free	0.00%	50.00%
WLG Wilshire Large Co Growth	0.00%	50.00%	EFE Emg Mkt Free Far		
WLV Wilshire Large Co Value	0.00%	50.00%	East	0.00%	50.00%
WMG Wilshire Mid-Cap Growth	0.00%	50.00%	ELA Emg Mkt Free Latin Amer.	0.00%	50.00%
WMV Wilshire Mid-Cap Value	0.00%	50.00%	WF International Equities	0.00%	50.00%
WSG Wilshire Small Co Growth	0.00%	50.00%	WE International – Europe	0.00%	50.00%
WSV Wilshire Small Co Value	0.00%	50.00%	Real Estate	10.00%	15.00%
			RAR REIT Composite	0.00%	100.00%
			REE REITs/Equity	0.00%	100.00%
			REM REITs/Mortgage	0.00%	100.00%

Optimizing a portfolio annually provided better performance 6 out of the 9 years in the study (see Chart 1) and generated a cumulative performance growth of 57.18% compared to 0.00% for the S&P 500. This equates to a 6.35% higher annual average rate of return (see Chart 2). The Optimal Portfolios outperformed a Classic Portfolio by 32.50% or 3.61% annually.

Interestingly, over this period the Salomon Broad Bond Index outperformed, by a substantial margin, the Optimal and Classic portfolios as well as the S&P 500. There are several reasons for this performance including the flight to safety and the decline in interest rates (the Fed rate hit 0.25%).

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Chart 1

ANNUAL PERFORMANCE (ROR) FOR INDICES AND PORTFOLIOS									
Time Horizon: 12/2000-12/2001 Hold Period: 12 months									
	2001	2002	2003	2004	2005	2006	2007	2008	2009
SPC S&P 500 Composite	-11.89%	-22.10%	28.69%	10.88%	4.91%	15.80%	5.49%	-37.00%	26.46%
SBI Salomon Broad Bond Index	8.52%	10.09%	4.21%	4.47%	2.57%	3.11%	7.22%	7.01%	5.06%
Classic Model	-3.88%	-10.25%	18.35%	8.19%	4.08%	10.68%	6.21%	-21.67%	17.78%
Optimal	-6.18%	-5.44%	26.25%	13.84%	1.93%	15.29%	9.66%	-24.89%	27.36%

Chart 2

CUMULATIVE PERFORMANCE (ROR) FOR INDICES AND PORTFOLIOS										
Beginning Value = 10000										
	2001	2002	2003	2004	2005	2006	2007	2008	2009	Cum %
SPC S&P 500 Composite	8811.00	6863.77	8832.98	9794.01	10274.90	11898.33	12551.55	7907.48	9999.80	0.00%
SBI Salomon Broad Bond Index	10852.00	11946.97	12449.93	13006.45	13340.71	13755.61	14748.76	15782.65	16581.25	65.81%
Classic Model	9612.00	8626.77	10209.78	11045.96	11496.64	12724.48	13514.67	10586.04	12468.24	24.68%
Optimal	9382.00	8871.62	11200.42	12750.56	12996.64	14983.83	16431.27	12341.53	15718.17	57.18%

Chart 3

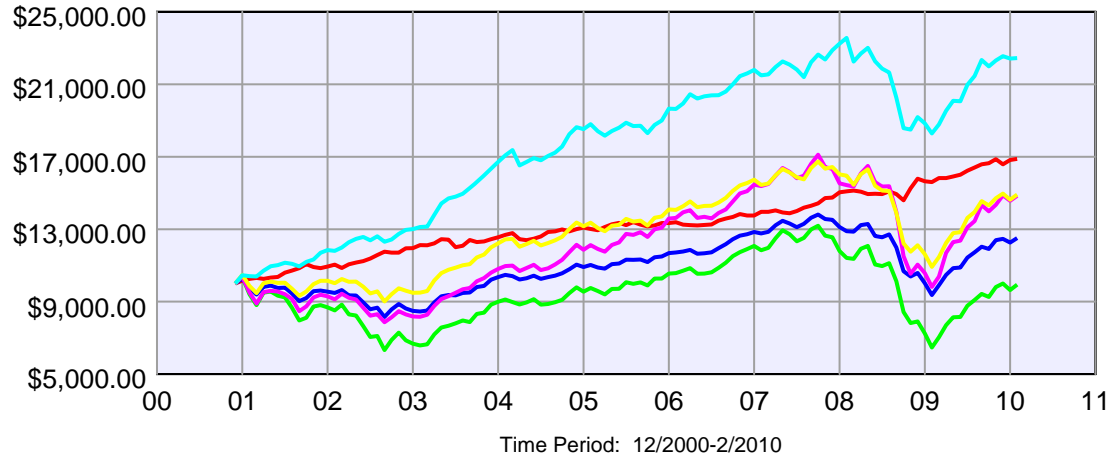
Performance of Indices versus 2000, 2001 and 2002 optimal portfolios						
Time Horizon: 12/2000-2/2010 Hold Period: 12 months						
Name	Cumulative Rate Of Return	Annualized Rate Of Return	High Period Growth Rate	Low Period Growth Rate	Number Positive Periods	Number Negative Periods
SPC S&P 500 Composite	-0.61%	-0.07%	53.62%	-43.32%	61	38
SBI Salomon Broad Bond Index	68.83%	5.88%	14.07%	-0.82%	96	3
Classic Model	25.07%	2.47%	33.48%	-27.30%	66	33
2000	48.41%	4.40%	51.22%	-36.43%	67	32
2001	49.11%	4.45%	36.51%	-31.52%	70	29
2002	124.47%	9.22%	32.07%	-22.38%	87	12

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Security Analysis: Historical Performance



- SPC S&P 500 Composite
- SBI Salomon Broad Bond Index
- Classic Model
- 2000
- 2001
- 2002

Chart 3 above provides another example of gaining performance from optimizing portfolios. The 2000 portfolio (Chart 4), which included an allocation to CSFB Long/Short Eq Hedge Fund Index, performed materially better than the Classic Portfolio as well as the S&P 500 Index. The 2002 portfolio (Chart 4), which included a substantial allocation to the CSFB Global Macro Hedge Fund Index, not only outperformed the Classic Portfolio and S&P Index, but provided almost double the performance of the Salomon Broad Bond Index.

Charts 2 and 3 clearly demonstrate the benefits not only of optimization, but of including hedge funds in the allocation. The portfolio that was optimized using data from 12/1993 – 12/2000 and included an allocation of 10.00% to the CSFB Long/Short Eq Idx outperformed the Classic Portfolio and the S&P 500 Index by 48.41% to 25.07% and -0.61% respectively for the period 1/2000 through 2/2010.

The portfolio that was optimized using data from 12/1993 – 12/2001 and included an allocation of 12.23% to the CSFB Global Macro Idx outperformed the Classic Portfolio and the S&P 500 Index by 49.11% to 25.07% and -0.61% respectively for the period 1/2000 through 2/2010.

The portfolio that was optimized using data from 12/1993 – 12/2002 and included an allocation of 40.00% to the CSFB Global Macro Idx outperformed the Classic Portfolio and the S&P 500 Index by an amazing 124.47% to 25.07% and -0.61% respectively for the period 1/2000 through 2/2010.

It also gives us some insight into the possible advantages of mixing art and science.

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Chart 4

2000 Optimal Portfolio Allocation				2002 Optimal Portfolio Allocation			
Time Horizon: 12/1993 – 12/2000				Time Horizon: 12/1993 – 12/2002			
	1 Year Mean RoR	STD	Hold		1 Year Mean RoR	STD	Hold
Wilshire Large Co Growth	8.85%	23.30%	22.50%	CSFB Global Macro Idx	14.11%	13.33%	40.00%
Wilshire Mid-Cap Growth	11.11%	26.68%	20.23%	REITs/Mortgage	11.32%	33.35%	15.00%
Short World Bonds	5.02%	5.03%	10.00%	Salomon Cp. Bds. 1-10 Yr	6.46%	4.46%	10.00%
Salomon High Yield Bonds	7.44%	12.83%	10.00%	International Bonds	5.73%	7.90%	10.00%
REITs/Equity	10.55%	22.42%	10.00%	90 Day Treasury Bills	3.86%	1.72%	5.00%
CSFB Long/Short Eq Idx	11.59%	13.63%	10.00%	Wilshire Mid-Cap Value	11.96%	20.56%	5.00%
Intl Europe	10.30%	22.46%	5.00%	All Country World Emg Mkt	16.38%	26.81%	5.00%
All Country World Emg Mkt	16.38%	26.81%	5.00%	Intl Europe	10.30%	22.46%	5.00%
90 Day Treasury Bills	3.86%	1.72%	5.00%	Wilshire Mid-Cap Growth	11.11%	26.68%	4.32%
S&P 500 Composite	9.22%	20.22%	2.27%	Wilshire Small Co Value	11.60%	21.38%	0.68%

Portfolio Analysis: Performance

The performance tables below demonstrate how the S&P 500 Index, Classic Portfolio and Optimal Portfolios performed relative to their respective “expected” performance (historical RORs and volatilities). Notice how the Optimal Portfolio consistently had a Lower Beta and higher Alpha to the S&P 500 Index. Lower Betas are clearly preferred in times of uncertainty and high volatility. The Optimal Portfolio outperformed the Index and the Classic portfolio in addition to remaining within its target probability range (with the one exception of 2008).

Time Horizon:	12/1993-12/2000			Risk-free ROR: 4.76%				Boundary (90%)			Risk Adjusted
Name	Beta	Alpha	Corr.	Sharpe	R-squared	Mean 1 Yr. ROR	STD	Upper	Lower	Actual 2001	ROR
SPC S&P 500	1.00	1.00	1.00			23.15%	11.56%	61.23%	-14.93%	-11.89%	-35.04%
Classic Model	0.64	1.78	0.98	1.56	0.95	16.52%	7.54%	43.70%	-10.66%	-3.88%	-16.17%
2000	0.47	6.61	0.62	1.46	0.39	17.53%	8.78%	46.37%	-11.31%	-6.18%	-16.94%
Time Horizon:	12/1993-12/2001			Risk-free ROR: 4.76%				Boundary (90%)			Risk Adjusted
Name	Beta	Alpha	Corr.	Sharpe	R-squared	Mean 1 Yr. ROR	STD	Upper	Lower	Actual 2002	ROR
SPC S&P 500	1.00	1.00	1.00			17.72%	17.37%	46.87%	-11.43%	-22.10%	-39.82%
Classic Model	0.59	2.96	0.99	0.84	0.97	13.47%	10.43%	35.63%	-8.69%	-10.25%	-20.15%
2001	0.6	2.71	0.94	0.77	0.87	13.34%	11.14%	35.28%	-8.60%	-5.44%	-15.35%

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Time Horizon:	12/1993-12/2002			Risk-free ROR: 4.76%				Boundary (90%)		Risk Adjusted	
Name	Beta	Alpha	Corr.	Sharpe	R-squared	Mean 1 Yr. ROR	STD	Upper	Lower	Actual 2003	ROR
SPC S&P 500	1.00	1.00	1.00			13.61%	19.71%	36.00%	-8.78%	28.69%	15.08%
Classic Model	0.6	2.85	0.99	0.52	0.98	10.98%	11.87%	29.04%	-7.08%	18.35%	9.86%
2002	0.12	11.28	0.23	0.76	0.05	12.97%	10.80%	34.31%	-8.37%	26.25%	20.50%
Time Horizon:	12/1993-12/2003			Risk-free ROR: 4.76%				Boundary (90%)		Risk Adjusted	
Name	Beta	Alpha	Corr.	Sharpe	R-squared	Mean 1 Yr. ROR	STD	Upper	Lower	Actual 2004	ROR
SPC S&P 500	1.00	1.00	1.00			12.30%	19.95%	32.53%	-7.93%	10.88%	-1.42%
Classic Model	0.59	2.87	0.99	0.45	0.98	10.18%	11.96%	26.93%	-6.57%	8.19%	0.23%
2003	0.12	11.99	0.24	0.83	0.06	13.51%	10.50%	35.73%	-8.71%	13.84%	8.03%
Time Horizon:	12/1993-12/2004			Risk-free ROR: 4.76%				Boundary (90%)		Risk Adjusted	
Name	Beta	Alpha	Corr.	Sharpe	R-squared	Mean 1 Yr. ROR	STD	Upper	Lower	Actual 2005	ROR
SPC S&P 500	1.00	1.00	1.00			13.06%	19.34%	34.54%	-8.42%	4.91%	-8.15%
Classic Model	0.59	2.76	0.99	0.50	0.98	10.48%	11.53%	27.72%	-6.76%	4.08%	-4.05%
2004	0.16	12.14	0.27	0.83	0.07	14.20%	11.31%	37.56%	-9.16%	1.93%	-4.34%
Time Horizon:	12/1993-12/2005			Risk-free ROR: 4.76%				Boundary (90%)		Risk Adjusted	
Name	Beta	Alpha	Corr.	Sharpe	R-squared	Mean 1 Yr. ROR	STD	Upper	Lower	Actual 2006	ROR
SPC S&P 500	1.00	1.00	1.00			12.65%	18.51%	33.46%	-8.16%	15.80%	3.15%
Classic Model	0.59	2.64	0.99	0.49	0.98	10.13%	11.07%	26.79%	-6.53%	10.68%	2.75%
2005	0.16	11.78	0.26	0.81	0.07	13.74%	11.11%	36.34%	-8.86%	15.29%	9.09%

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Time Horizon:	12/1993-12/2006			Risk-free ROR: 4.76%				Boundary (90%)		Risk Adjusted	
Name	Beta	Alpha	Corr.	Sharpe	R-squared	Mean 1 Yr. ROR	STD	Upper	Lower	Actual 2007	ROR
SPC S&P 500	1.00	1.00	1.00			12.53%	17.76%	33.14%	-8.08%	5.49%	-7.04%
Classic Model	0.59	2.48	0.99	0.48	0.98	9.92%	10.64%	26.24%	-6.40%	6.21%	-1.59%
2006	0.22	10.87	0.37	0.84	0.14	13.64%	10.61%	36.08%	-8.80%	9.66%	2.95%
Time Horizon:	12/1993-12/2007			Risk-free ROR: 4.76%				Boundary (90%)		Risk Adjusted	
Name	Beta	Alpha	Corr.	Sharpe	R-squared	Mean 1 Yr. ROR	STD	Upper	Lower	Actual 2008	ROR
SPC S&P 500	1.00	1.00	1.00			12.67%	17.12%	33.51%	-8.17%	-37.00%	-49.67%
Classic Model	0.59	2.47	0.99	0.51	0.98	9.98%	10.26%	26.40%	-6.44%	-21.67%	-29.51%
2007	0.28	10.3	0.5	0.95	0.25	13.81%	9.53%	36.53%	-8.91%	-24.89%	-32.18%
Time Horizon:	12/1993-12/2008			Risk-free ROR: 4.76%				Boundary (90%)		Risk Adjusted	
Name	Beta	Alpha	Corr.	Sharpe	R-squared	Mean 1 Yr. ROR	STD	Upper	Lower	Actual 2009	ROR
SPC S&P 500	1.00	1.00	1.00			10.64%	18.40%	28.14%	-6.86%	26.46%	15.82%
Classic Model	0.60	2.34	0.99	0.36	0.98	8.73%	11.15%	23.09%	-5.63%	17.78%	10.64%
2008	0.37	8.97	0.61	0.74	0.37	12.86%	10.99%	34.01%	-8.29%	27.36%	19.60%

Time Horizon:	12/1993-12/2009			Risk-free ROR: 4.76%				Boundary (90%)			
Name	Beta	Alpha	Corr.	Sharpe	R-squared	Mean 1 Yr. ROR	STD	Upper	Lower		
SPC S&P 500	1.00	1.00	1.00			8.85%	19.98%	23.41%	-5.71%		
Classic Model	0.61	2.25	0.99	0.23	0.98	7.63%	12.24%	20.18%	-4.92%		
2009	0.32	8.24	0.65	0.64	0.42	11.10%	9.97%	29.36%	-7.16%		

* For calculations and disclaimers, please see "Definitions and Disclaimers"

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Art and Science

Investing is part art (knowledge, experience, intuition) and part science (historical data, mathematical calculations, probability simulations, quadratic algorithms, etc.). There may be times when you, as the advisor, have certain knowledge or expectations that warrant the inclusion or exclusion of some assets irrespective of historical performance and correlation coefficients. A few classic examples would be (i) excluding intermediate and long-term bonds during inflationary and rising interest periods (1975-1980), (ii) excluding gold during deflationary periods (1980-1999) and, (iii) excluding Japanese or Pacific Rim securities in 1988 –2001.

Art, however, needs to take a back seat to science when actually allocating holdings. It is virtually impossible, in the writer's opinion, for advisors to realistically understand how a portfolio of securities will perform when multiple assets are combined without understanding how they tend to perform relative to each other. Will the selected assets move in the same direction or in opposite directions and what is the volatility of those movements? These measured characteristics may include standard deviations, betas, alphas, correlation coefficients, covariances and other market related characteristics.

This is where financial tools, like AdvisoryWorld's applications, are invaluable in assisting advisors in reviewing multiple "what if" scenarios and the probabilities that any alternative solution might achieve an investor's financial goals.

Using historical data

Optimizing portfolios using historical data (rates of return and standard deviations) will determine the portfolio mix that would, in fact, have generated the highest possible rate of return for any specific level of risk assumed during the time frame used (i.e. 12/1993-12/2000). However, as the usual disclaimer indicates, past performance is no guarantee of future performance. If you had an optimal mix beginning 12/1993, you would have done very well. In other words, optimizing using historical data will make you a great Monday morning quarterback, but that same mix may not work over the next 5 or 10 years.

Optimization - An invaluable tool

The advantage in using historical data is that you can see how various assets perform relative to each other. The extent to which knowledge of one asset return provides information regarding the behavior of another asset is measured by the correlation of returns. Are they moving in the same or opposite directions at the same time? Measurements of risk and return characteristics of individual investments are inadequate in explaining what happens when investments are combined in portfolios. The true measurement of diversification between assets is called the covariance of assets. Covariance measures the timing, direction and momentum of the movement of two variables. Are they moving in the same direction at the same time, and what is the volatility of the movement of each variable? Knowing how selected assets perform in relation each other gives us a key bit of information that can be used by the optimization algorithm. Adding in our "expected" return assumptions can give us an extremely good idea about how any mix of assets might perform based on our economic and market assumptions.

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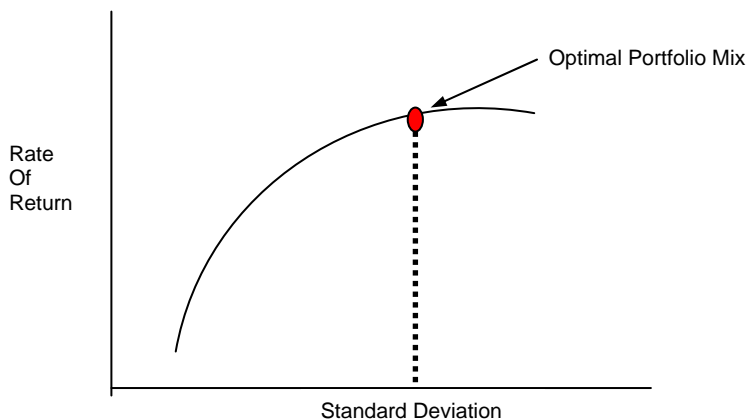
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Applying forecasted returns

Several optimization routines such as those used by Ibbotson and AdvisoryWorld can employ forecasted returns. In general, these returns represent an estimation of future returns. One method for doing this, and which is used in AdvisoryWorld's applications, uses historical risk-premia differential analysis and forward assumptions regarding 90 Day Treasury Bills. While these "expected" returns can be helpful, advisors should develop their own future assumptions regarding economic and market environments.

By calculating the correlations, standard deviations, and covariances and applying our "expected" returns for all of the assets in any given portfolio it is possible to calculate a theoretically optimal portfolio mix for any degree of risk an investor is willing to take. Each portfolio on the "efficient frontier" will generate the highest possible ROR for any specified level of risk (risk being measured by the standard deviation of returns). Portfolios which exhibit the same STD (volatility) will generate lower returns and will, therefore be considered inefficient. Professionals using AdvisoryWorld's applications can specify the downside risk an investor is willing to accept in any 12 month period. Can the investor accept a loss of 5% of their portfolio or are they extremely conservative and not willing to accept any downside loss (i.e.0.0%). Given the portfolios found on the efficient frontier, the downside risk is calculated using each portfolio's expected rate of return and standard deviation. If the downside risk for a portfolio at the 90% confidence level exceeds the investor's risk profile, then the portfolio is not recommended. Only those portfolios that offer a downside risk less than specified should be considered.



Let's take a simple example. In 1988 most money managers realized that the Far East (Japanese) markets were substantially overvalued. In fact, one money manager observed that values had gotten so overblown that the island of Japan was valued more than the entire continental United States. Price earnings ratios were over 90 times earnings. Optimizing a portfolio using historical performance resulted in the portfolio returns and asset mix in the table below. Notice the returns for the Intl EAFE and Intl Far East asset classes and the 30.92% allocated to Intl Far East. Given the assumption that these markets were substantially overvalued, this would not have been a realistic asset allocation.

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ASSET/SECURITY STATISTICS

Time Horizon: 12/1979 - 12/1988

	1 Year Mean RoR	STD	Hold
90 Day Treasury Bills	8.93%	2.67%	0.00%
Wilshire Large Co Growth	14.41%	21.00%	0.00%
Wilshire Large Co Value	16.82%	16.19%	0.00%
Wilshire Mid-Cap Growth	18.19%	26.34%	0.00%
Wilshire Small Co Growth	16.34%	28.38%	0.00%
Wilshire Small Co Value	21.33%	21.63%	18.95%
Specialty - Utilities	15.19%	12.41%	0.00%
Intl EAFE	27.10%	29.44%	0.00%
Intl Far East	34.91%	34.69%	30.92%
Salomon Cp. Bds. 1-10 Yr	13.10%	8.09%	50.13%

By substantially reducing our estimated returns for the Intl EAFE and Intl Far East asset classes and re-optimizing, we now have a materially different asset allocation (see Hold in the table below) which does not have any allocation to the far-east indices.

ASSET/SECURITY STATISTICS

Time Horizon: 12/1979 - 12/1988

	1 Year Mean RoR	STD	Hold
90 Day Treasury Bills	7.00%	2.67%	5.00%
Wilshire Large Co Growth	14.41%	21.00%	0.00%
Wilshire Large Co Value	16.82%	16.19%	50.94%
Wilshire Mid-Cap Growth	18.19%	26.34%	0.00%
Wilshire Small Co Growth	16.34%	28.38%	0.00%
Wilshire Small Co Value	21.33%	21.63%	16.56%
Specialty - Utilities	15.19%	12.41%	7.50%
Intl EAFE	10.00%	29.44%	0.00%
Intl Far East	10.00%	34.69%	0.00%
Salomon Cp. Bds. 1-10 Yr	13.10%	8.09%	20.00%

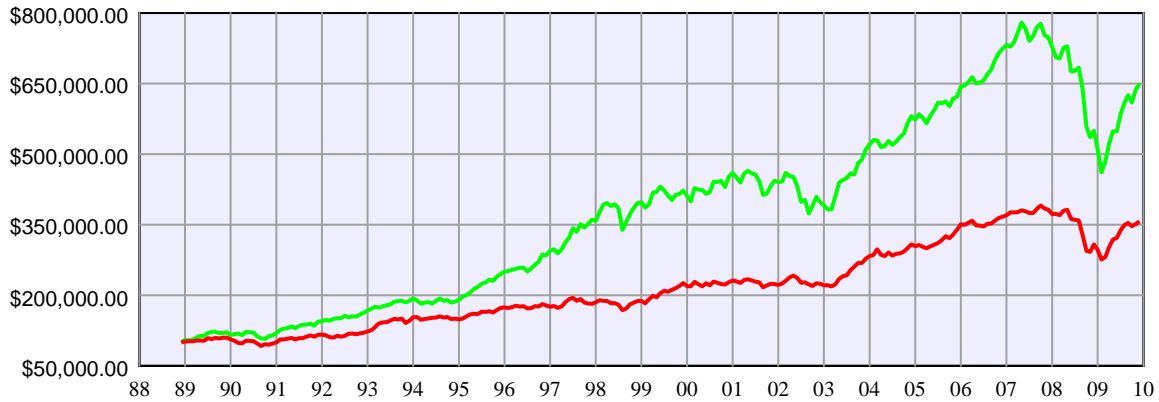
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The performance results to the end of 2009 shown below clearly demonstrate the benefits of forecasting performance characteristics of assets. This will also materially affect our decisions as to which investment vehicles are actually used.

OPTIMAL (Forecasted vs. Historical)



- Optimal (forecasted)
- █ Optimal (historical)
- █

	Time Horizon:	Probability Range:	Hold Period:
Optimal (forecasted)	12/1988 - 12/2009	90%	1 year(s)
Optimal (historical)	12/1988 - 12/2009	90%	1 year(s)

<u>Name</u>	<u>Cumulative Rate Of Return</u>	<u>Annualized Rate Of Return</u>	<u>High Period Growth Rate</u>	<u>Low Period Growth Rate</u>	<u>Number Positive Periods</u>	<u>Number Negative Periods</u>
Optimal (forecasted)	549.31%	9.32%	38.59%	-34.65%	190	51
Optimal (historical)	257.16%	6.25%	36.05%	-26.11%	188	53

“Expected” returns for assets versus individual securities

It is strongly suggested that portfolios be developed initially using “expected” returns for asset classes and not for individual securities. There is a much higher probability that you will be closer to actual performance if you estimate asset class returns. In general, security returns are a function of asset returns, but they may vary widely and are much more difficult to forecast. The issue isn’t whether you want to buy Microsoft, but whether you want to buy domestic equities and further, whether you want to buy large cap growth stocks.

In summary

Used properly, MPT and optimization tools can be extremely valuable in finding portfolios that will generate good returns while mitigating risk. Further, incorporating alternative investment vehicles such as hedge fund strategies from firms such as Chapwood CustomHedge can prove extremely rewarding. AdvisoryWorld’s powerful tools help advisors better analyze client and portfolio risk, find solid, more predictable investment solutions and present these results to clients in easy-to-understand client ready reports.

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