



Atlantic Asset Management

L.L.C.

Volatility-Based Asset Allocation

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Atlantic Asset Management

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Volatility-Based Asset Allocation

- Application of static asset allocation
- Volatility model
- Tests of volatility model
- Global Alpha Model
- Historical simulations of Global Alpha Model



Static Allocations

- Investors are frequently warned by advisors and consultants not to change their asset allocation.
- As a result, pension plan asset allocations are very static. In the 1980's, one well-known consultant joked that



Static Allocations

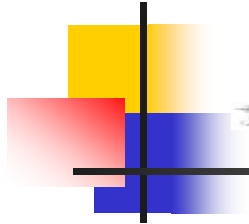
- Investors are frequently warned by advisors and consultants not to change their asset allocation.
- As a result, pension plan asset allocations are very static. In the 1980's, one well-known consultant joked that

**"I don't know what the question is,
but the answer is 60%."**

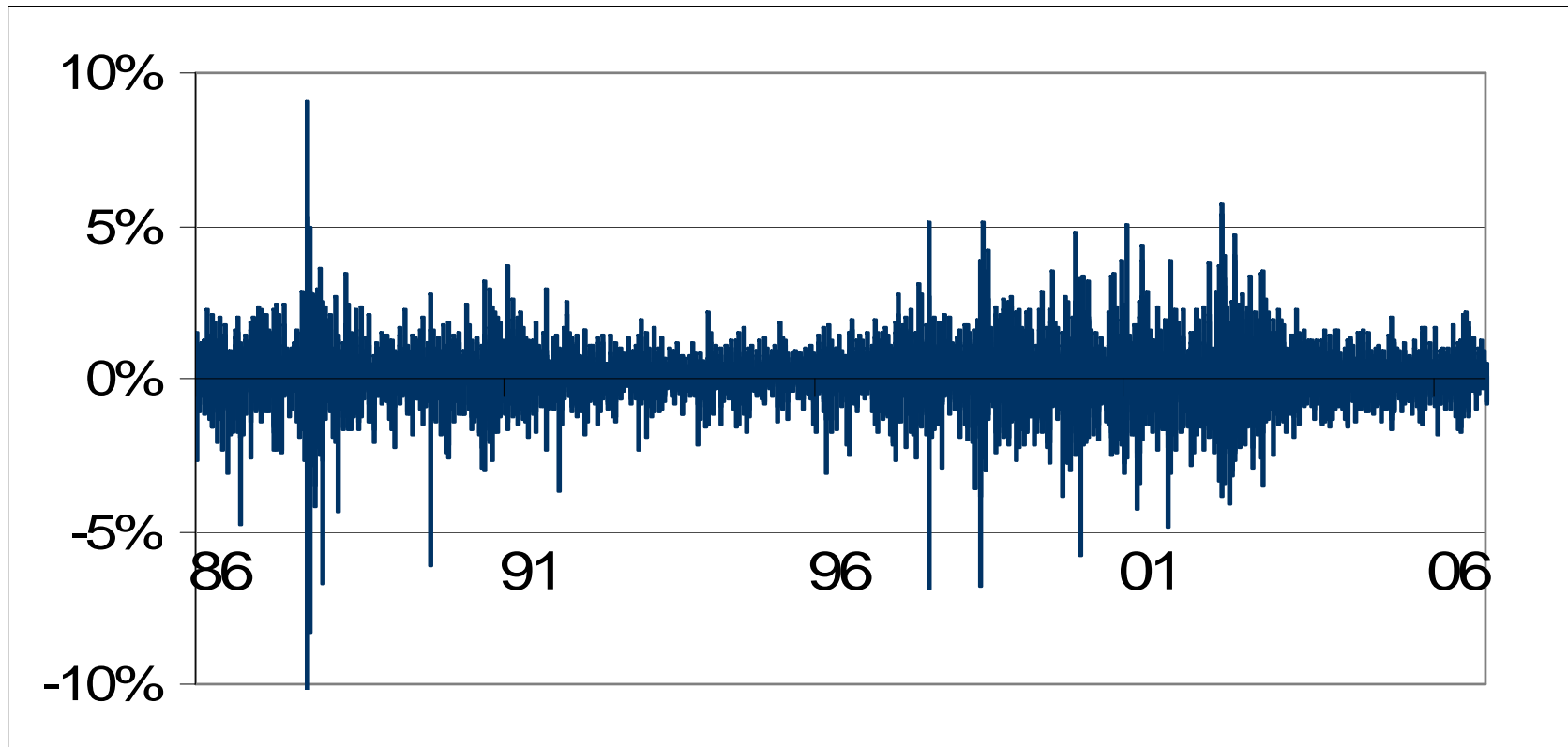


General Concept

- In theory, an institutional investor chooses a volatility level that is appropriate for the investment goals and time horizon for the overall fund
- The asset allocation SHOULD be dependent on changes in market conditions – particularly volatility.
- However, we know that in practice that does not happen – asset allocations are more static than they should be



Daily S&P 500 Stock Returns 1986-2006



Static Allocation – A Live Example

How many of you have changed your asset allocation over the past year?



Static Allocation – A Live Example

How many of you have changed your asset allocation over the past year?

Last 3 months of MSCI EAFE volatility as of 3/1/07?

10.7%

Last 3 months of MSCI EAFE volatility as of 3/1/08?



Static Allocation – A Live Example

How many of you have changed your asset allocation over the past year?

Last 3 months of MSCI EAFE volatility as of 3/1/07?

10.7%

Last 3 months of MSCI EAFE volatility as of 3/1/08?

24.7%



EVERYTHING
YOU KNOW
IS WRONG



Volatility and Risk Reduction

- If volatility shifts over time, it may be optimal to alter the asset allocation
- Reduce proportion invested in equities during periods when volatility is expected to be high
- Increase proportion invested in equities during periods when volatility is expected to be low



Simulation of Volatility Based Allocation

- Stocks and bonds have zero correlation
- Bonds have return of 7% and volatility of 2%
- Stocks have return of 12% and volatility of 16%
- 20 years of data are simulated, 100 trials of simulation
- Basic allocation is 50% stocks, 50% bonds
- Signal is created suggesting volatility is either increasing or decreasing – if increasing, stock allocation drops to 47%, and if decreasing, allocation increased to 53%



Simulation 1

- Volatility never changes
- False signal is created with 50% chance of suggesting volatility increase and 50% chance of suggesting volatility decrease



Results for Simulation 1

	Static Allocation Strategy	Varying Allocation Strategy
Return	9.29%	9.29%
Standard deviation	8.08%	8.10%
Number of trials with lower standard deviation	64	36
Maximum difference in standard deviation	0.24%	



Simulation 2

- Volatility either increases to 21% or decreases to 11%

Two signals are created:

- False signal with 50% chance of suggesting volatility increase and 50% chance of suggesting volatility decrease
- Correct signal predicting the volatility change



Results for Simulation 2

	Static Allocation Strategy	Incorrect Varying Allocation Strategy	Correct Varying Allocation Strategy
Return	9.30%	9.29%	9.29%
Standard deviation	8.50%	8.53%	8.22%
Trials with lower std dev than static		43	99
Max difference in std dev from static		0.31%	-0.49%

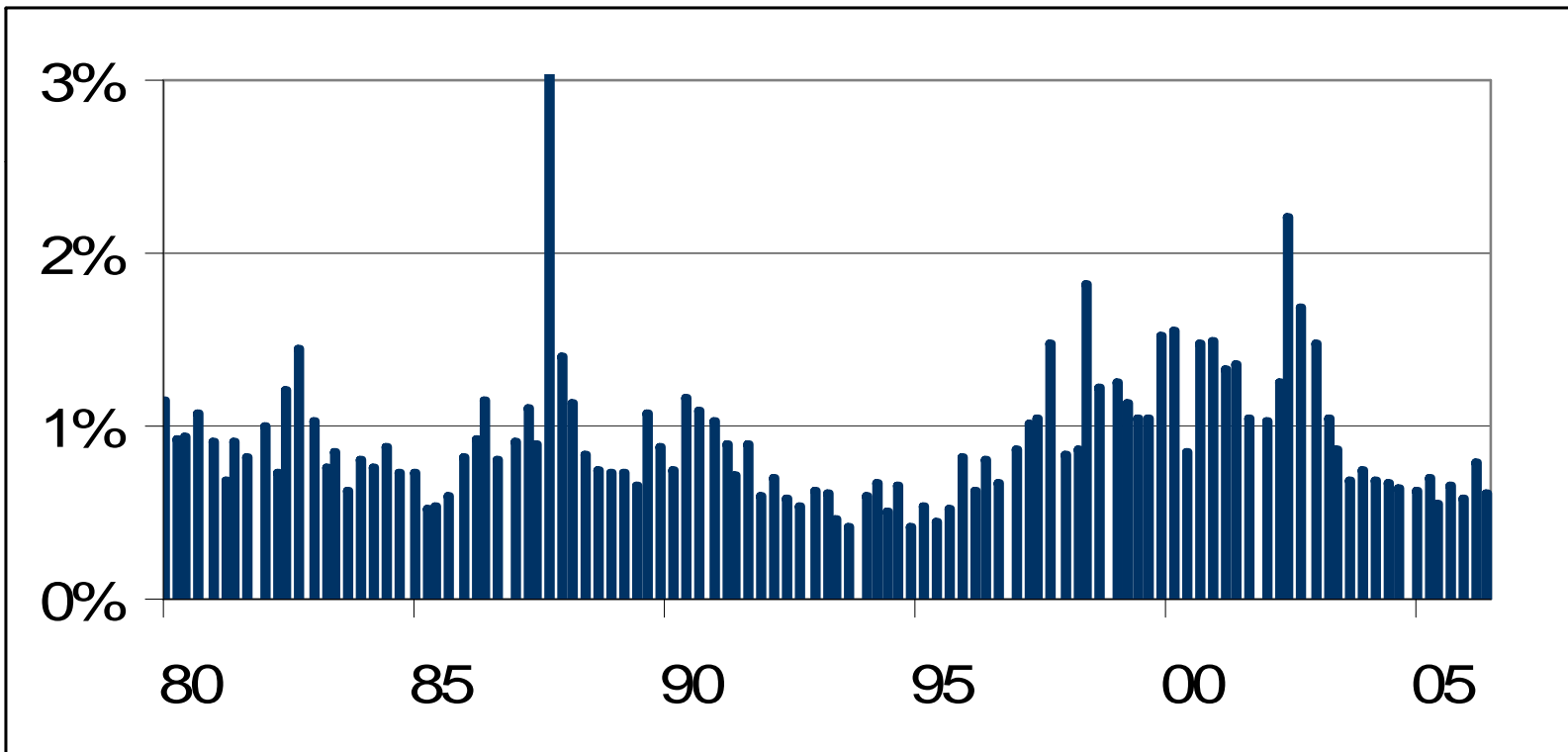


Simulation Implications

- Changing the allocation because of an incorrect signal causes an increase in volatility – but the change in volatility is very slight
- Changing the allocation because of a correct signal causes a large decrease in volatility

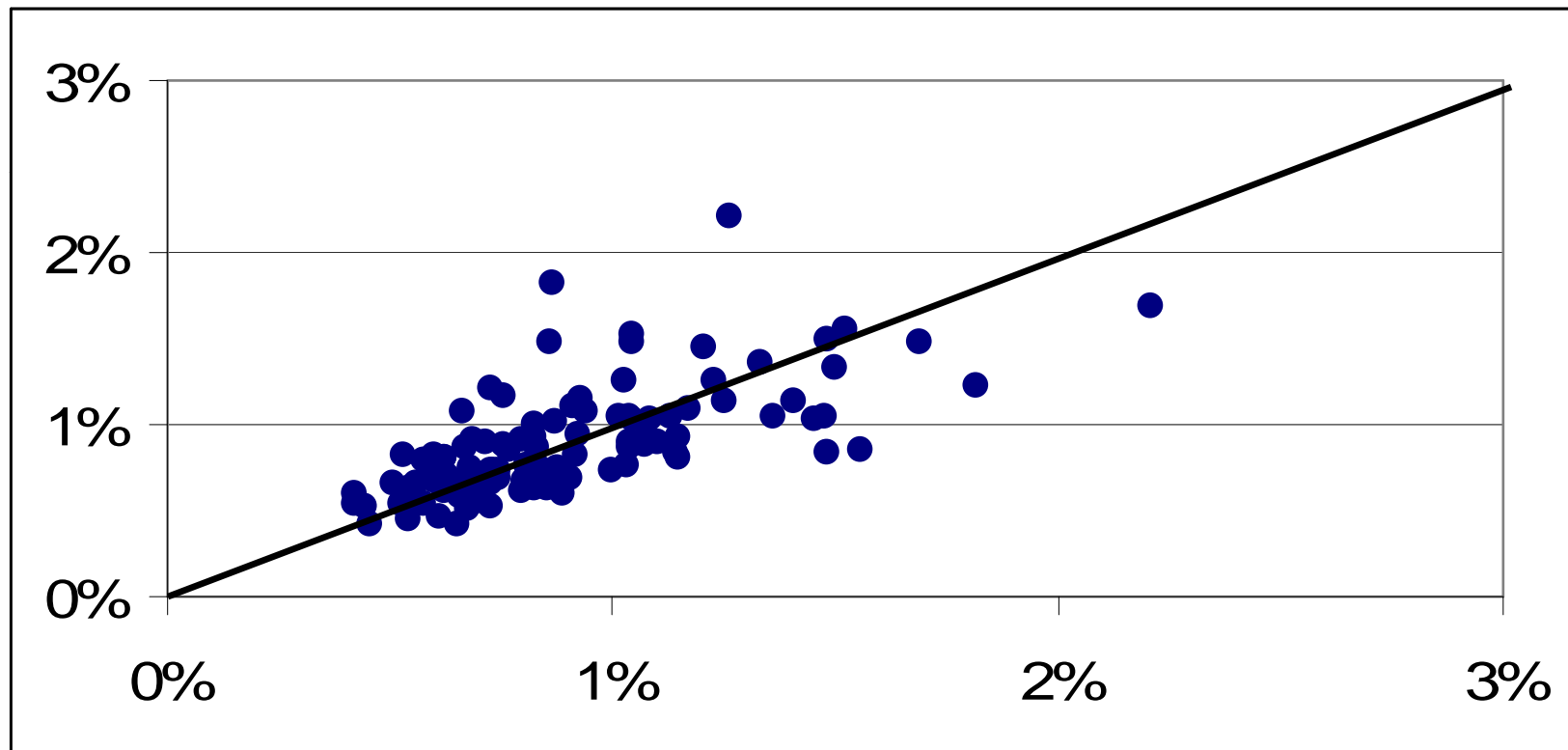


Quarterly Volatility for the S&P 500 1980-2005





Quarterly Volatility for the S&P 500 Compared to Volatility in the Succeeding Quarter – 1980-2007





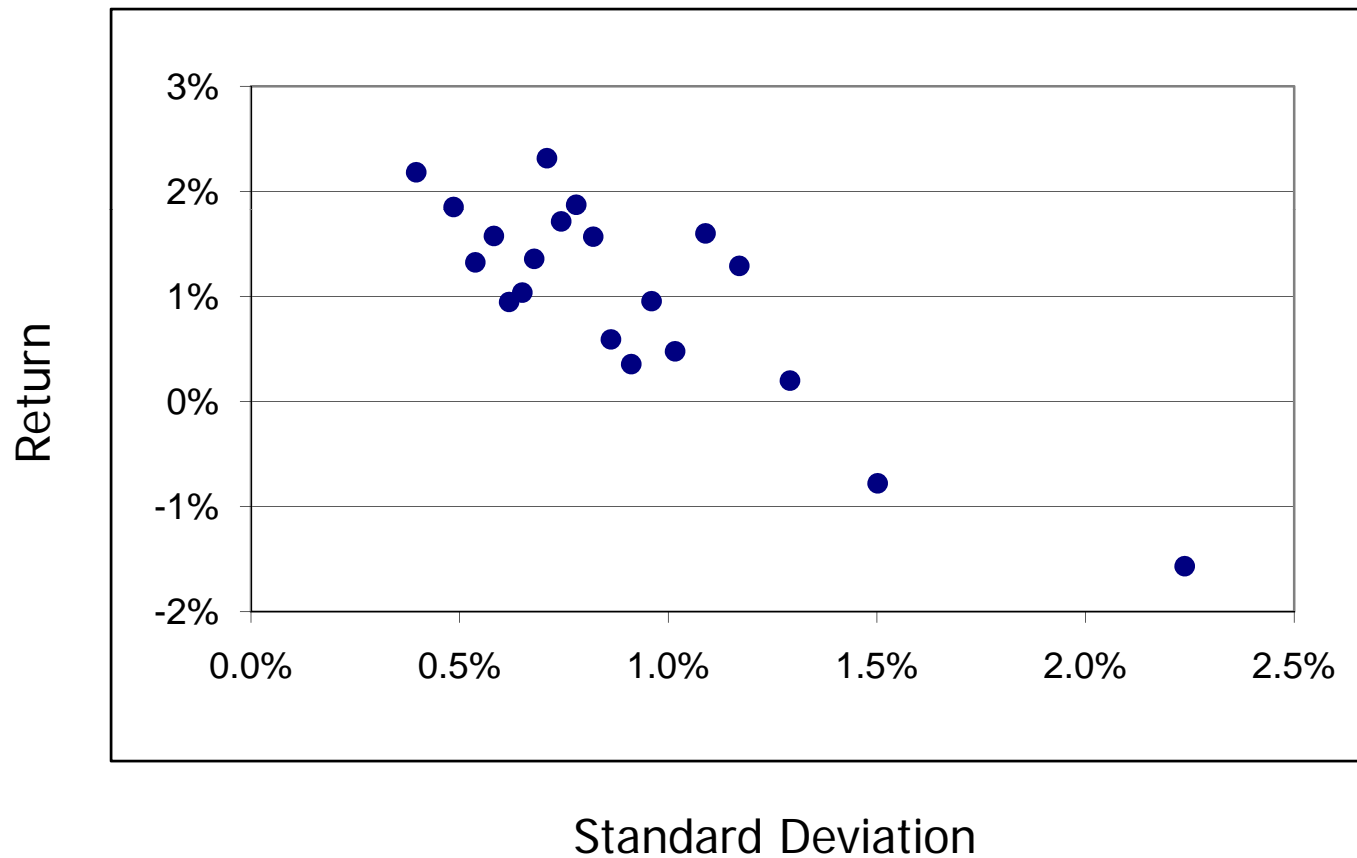
Volatility and Return Enhancement

- Historical data indicate that in periods of low volatility stocks will earn higher returns than in periods of high volatility
- Because future volatility is correlated with recent past volatility, it may be advantageous to vary the allocation to stocks to improve overall returns along with lowering risk



Volatility and Return Enhancement

Average return for 20 groups of days ranked by volatility





Tests of Volatility Model

- Create benchmark 60/40 model
- During periods of high volatility, decrease allocation to equities by 3% -- during periods of low volatility, increase allocation to equities by 3%
- Determine increase in return and decrease in risk caused by varying allocation
- Tests conducted on 19 markets (18 developed countries plus U.S. small cap) for which data is available from 1986-present

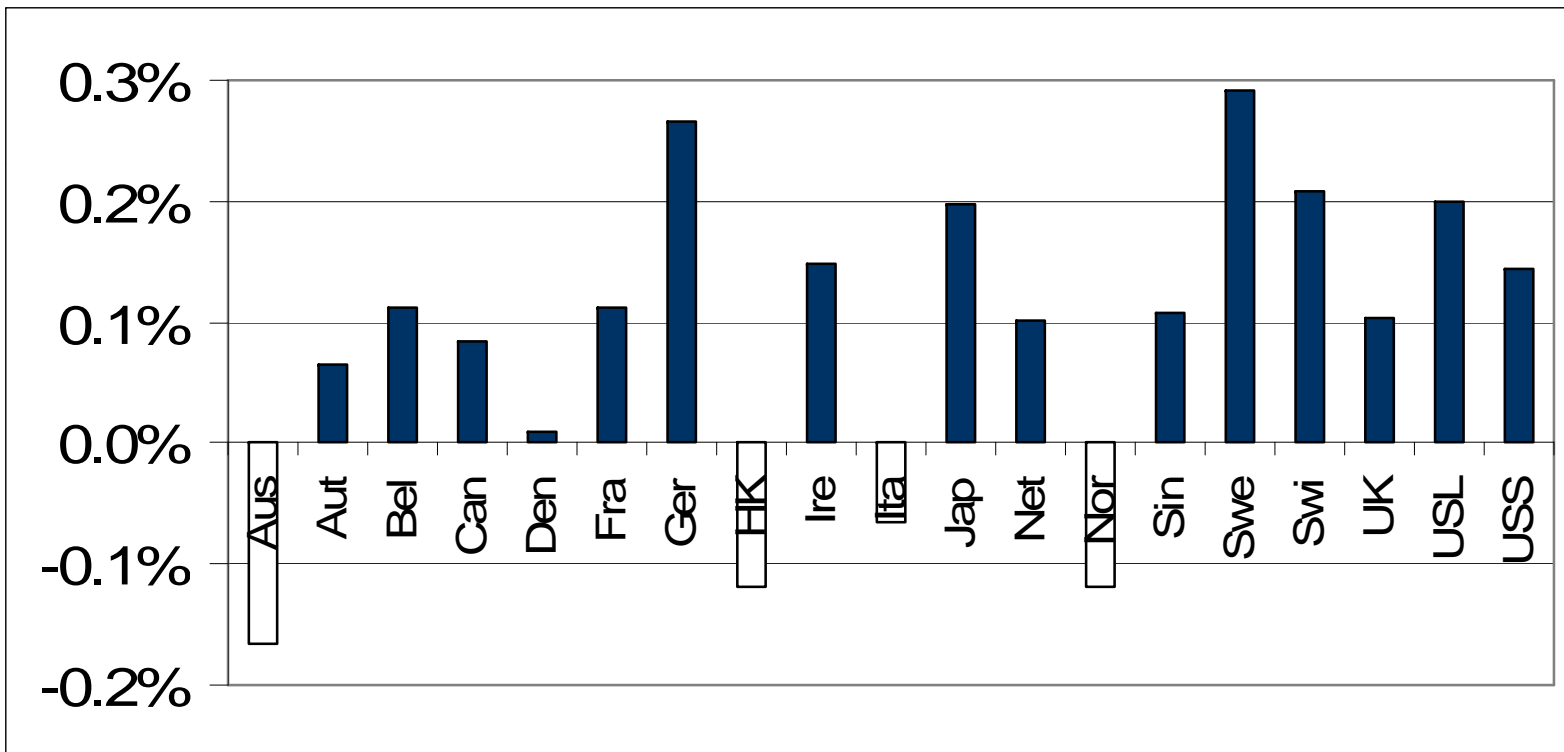


Test: U.S. Large Cap Example 1986-2006

	Varying Allocation (63%-57% equity)	Fixed Allocation (60% equity)
Average Return	10.33%	10.17%
Standard Deviation	10.16%	10.36%
Excess Return	16 basis points	
Decrease in Risk	20 basis points	

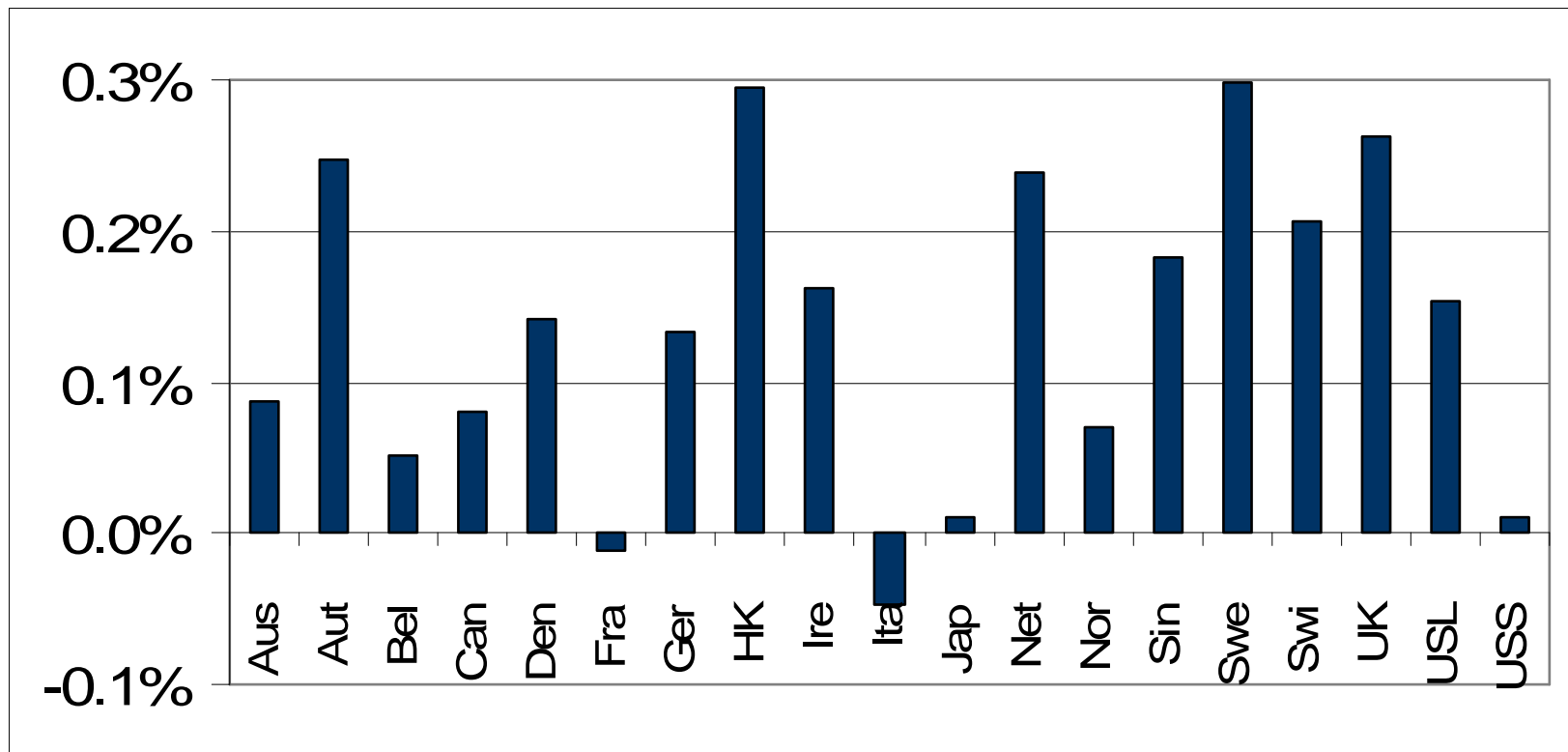


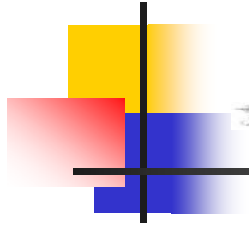
Decrease in Risk Caused by Varying Allocations Based on Recent Volatility: 1986-2006





Increase in Return Caused by Varying Allocations Based on Recent Volatility: 1986-2006





Volatility Model Test: Summary Results for 1986-2006

Proportion of markets with decreased risk	79%
Proportion of markets with increased return	89%
Average decline in risk	9 basis points
Average increase in return	14 basis points
Average increase in return per change in allocation	2.26%



How Can Return Enhancement Exist?

Inefficiencies created by:

- Country preference biases
- Static allocations
- Static volatility assumptions



The Global Alpha Model

Combine volatility with three other factors:

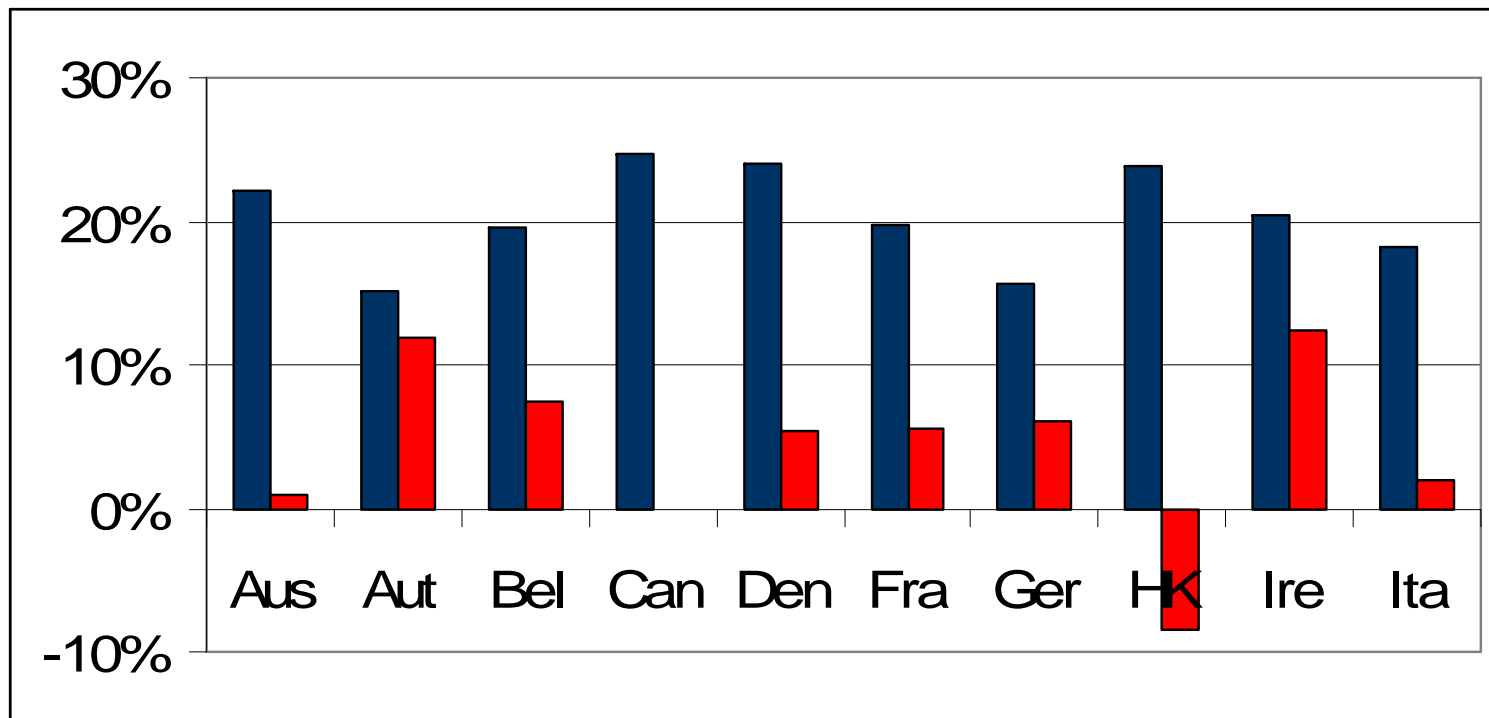
- Market valuation
- Economic conditions
- Price momentum

Net result of model is a favorable (bullish) or unfavorable (bearish) signal of market conditions

When favorable, invest 100% in stocks -- when unfavorable, invest 100% in bonds



Returns in Markets Identified by Global Alpha Model as Favorable and Unfavorable by Model: 1986-2006

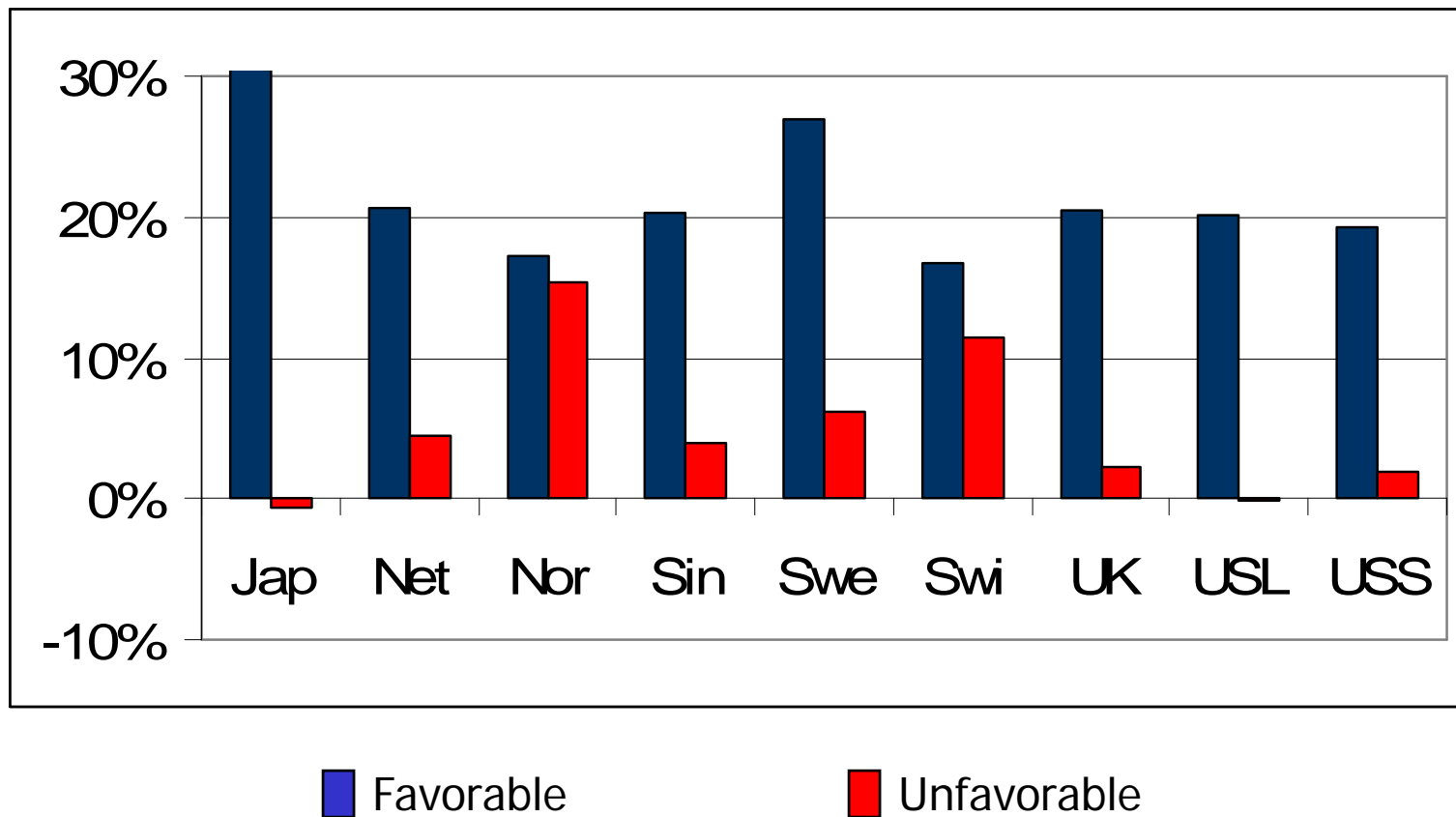


 Favorable

 Unfavorable

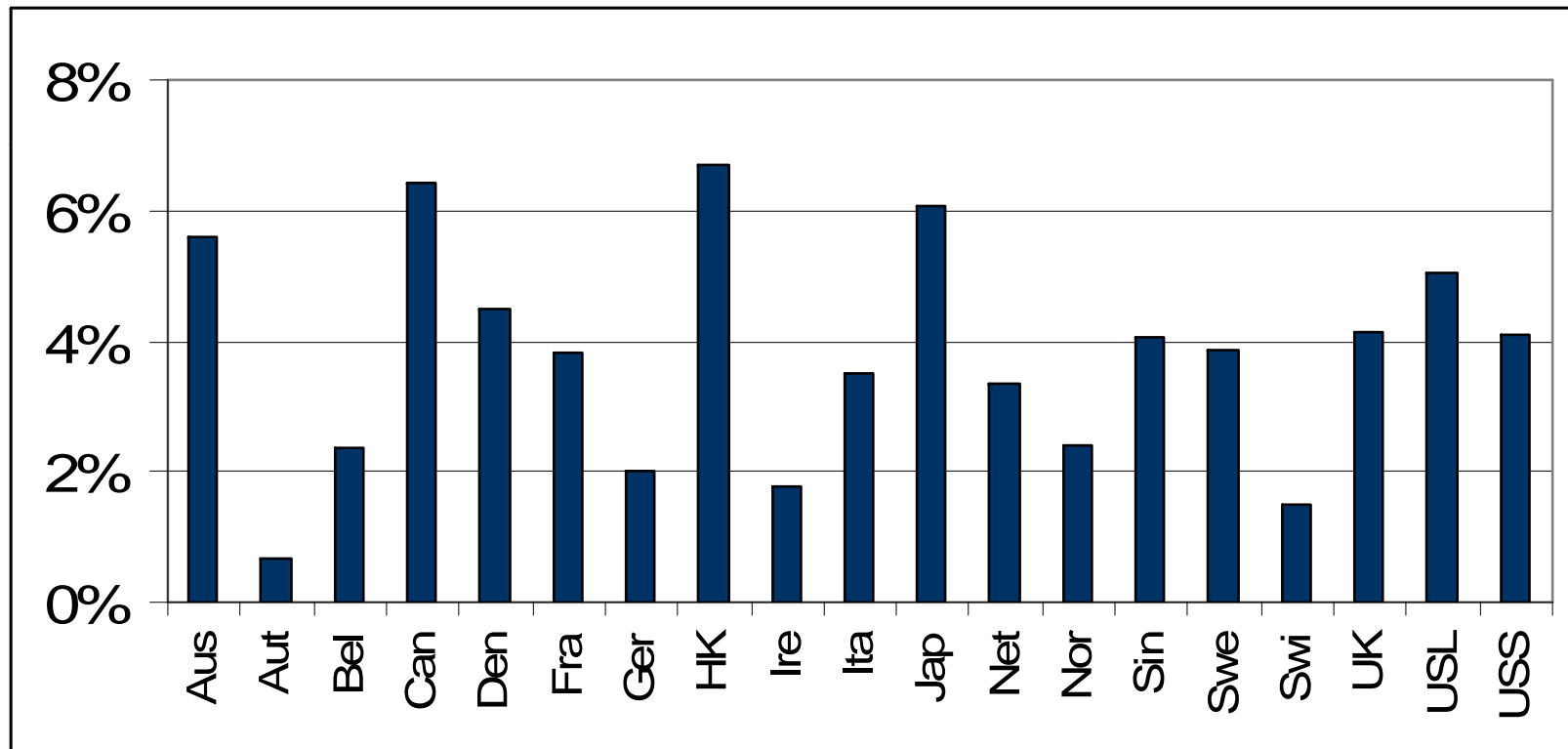


Returns in Markets Identified by Global Alpha Model as Favorable and Unfavorable by Model: 1986-2006





Excess Return of Global Alpha Model over 60/40 Benchmark by Country: 1986-2006





Hypothetical Portfolios with Global Alpha Model

- Model can be applied as an overlay or used to develop a fund
- In a fund, we create 22 separate positions in a portfolio
- Proportion of portfolio invested in equity is the proportion of countries identified as favorable
- Constrained optimization determines the relative weights of the countries in the portfolio

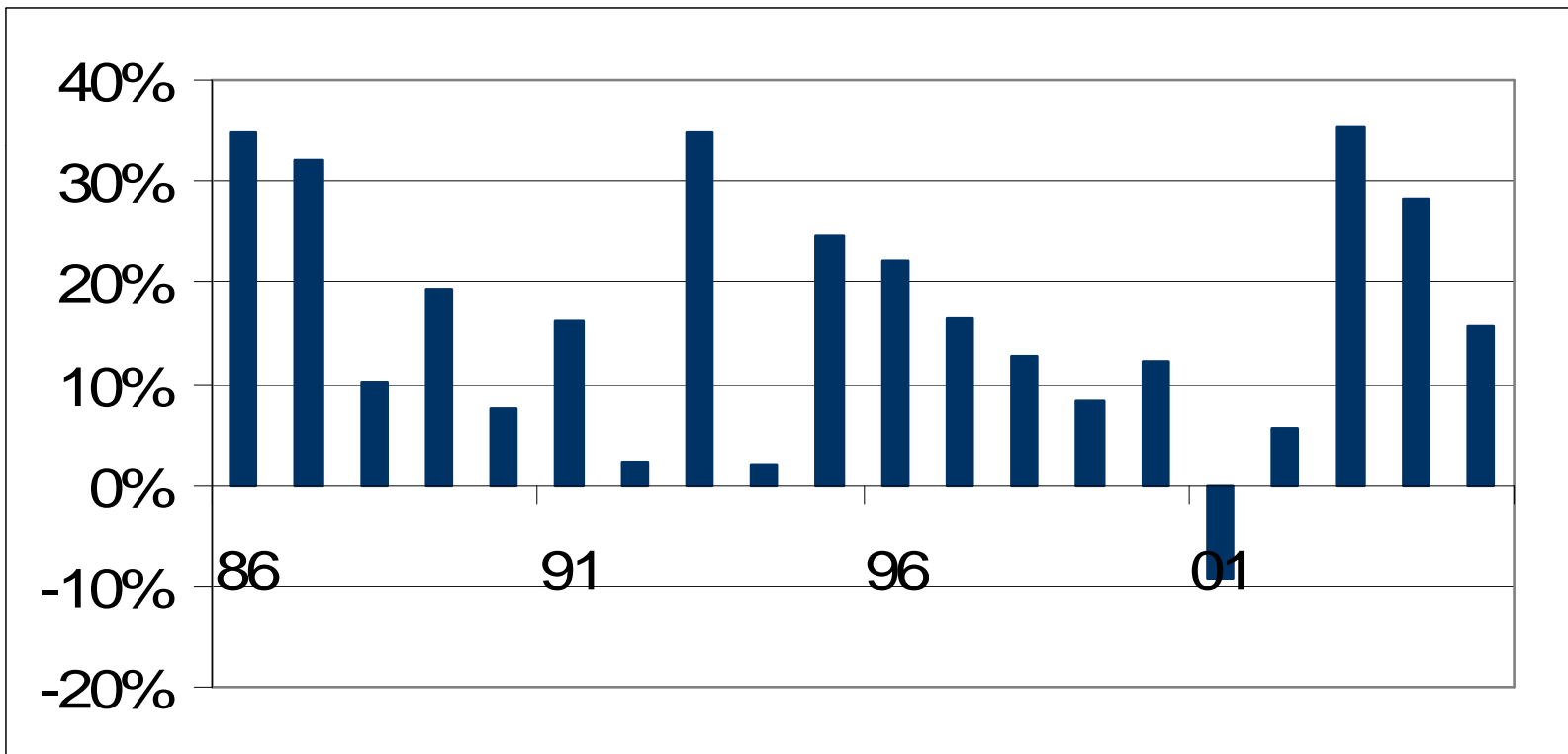


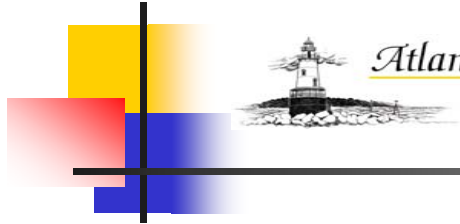
Global Alpha Model Hypothetical Portfolio Returns: 1986-2006

	Return	Standard deviation	Sharpe ratio
Global Alpha Model	15.1%	7.7%	1.2
MSCI World	10.5%	14.6%	0.3



Global Alpha Model Hypothetical Annual Portfolio Returns





Global Alpha Fund Actual Returns: December 1, 2006 - February 29, 2008

Global Alpha Model	6.8%
MSCI World	1.7%



Conclusion

- There is no justification for maintaining static asset allocation weights in the face of dynamic capital markets
- Varying the allocation consistent with recent volatility shifts has added return and decreased risk
- Tactical models based on the volatility variable provided good hypothetical and actual performance



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