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*Asset Allocation and the Financial Crisis*

presented by  
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Financial Crisis of 2008—2009

A Perfect Storm:

- Securitization
- Financial engineering
- Excessive leverage
- Misalignment of interests
- Greed

## The Beginning of 2009 Was a Scary Time

- I'm stuck. I feel that I need to stay dedicated to the strategy in order to have any chance of recovery, but I am having trouble with more downside risk.
- I don't know what to do.
- I just want to be in cash or maybe government bonds—at least until the outlook improves.
- As I look toward the future, I don't see how anything good can happen in the markets.
- I'm worried about the current market environment and equally concerned that government spending will lead to significant inflation down the road.

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## The Best Strategy for You

- Goal: an individually-tailored, all-weather investment strategy
- The strategy should satisfy two important considerations:
  - Behavioral Issues—The strategy's pattern of returns will not cause you to abandon the strategy during the widely varying market environments that you will experience during your investment time horizon.
  - Investment Issues—The strategy should make good investment sense given your:
    - Assets
    - Cash Flows
    - Investment Time Horizon
    - Financial Goals

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- Risk capacity is the factual ability to bear risk.
- Risk tolerance is the psychological willingness to bear risk.

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## The Many Faces of Risk

- Volatility of returns
- Inflation / purchasing power risk
- Inability to meet future cash flow needs / outliving one's resources
  - Longevity risk
  - Unsustainable portfolio withdrawals
  - Taking too much risk
  - Taking too little risk

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## Reasons to Re-evaluate Your Risk Tolerance

- Risk looking back is different from risk looking ahead
  - Looking back, every past bear market was followed by a recovery and subsequent bull market. In the past, things always eventually worked out.
  - Looking ahead, will things work out this time?
- The magnitude of recent losses influences one's willingness to sustain further losses.
- One's risk tolerance may be different during the portfolio accumulation phase than during the withdrawal phase.
- During the financial crisis, market volatility at times reached levels not seen since the Great Depression.

Source: ©Gibson Capital, LLC 2009

## Capital Losses

- Permanent capital losses:
  - Any particular company may get into economic difficulties.
  - In the worst case, a company's stocks and/or bonds may become worthless, resulting in a permanent loss of capital.
  - Fraudulent activity, such as Bernie Madoff's Ponzi scheme, can also result in a permanent loss of capital.
- Temporary set-backs:
  - An investment in a broadly diversified portfolio of stocks, e.g. an S&P 500 index fund, may lose significant value during bad market environments.
  - Barring total global economic collapse, not all the companies in a broadly diversified portfolio, like an S&P 500 index fund, will become worthless.
  - Historically, the broad stock market recovers losses during subsequent market advances.

Source: ©2009 Gibson Capital, LLC

## The Efficient Market Hypothesis (EMH)

In finance, the EMH asserts that prices of publicly-traded assets, such as stocks and bonds, already reflect all known information and that it is impossible to consistently outperform the market by using information that the market already knows, except through luck. Prices change in response to new information, unknowable in the present, which appears randomly in the future.

Source: ©2009 Gibson Capital, LLC

## What's Wrong with the EMH?

- EMH assumes that investors have rational expectations and that, with new information, they update their expectations appropriately. That is, investors use their minds, not their emotions, to make investment decisions. Individual investors may be wrong about the market, but the market as a whole is right. Market prices give the best estimate of “true values”.
- The field of behavioral finance evolved and gained prominence during the 1990s with the recognition that investors are not completely rational in their decision-making, thus challenging a crucial underpinning of the EMH. If the EMH is not correct, market prices may not give the best estimate of “true values”.

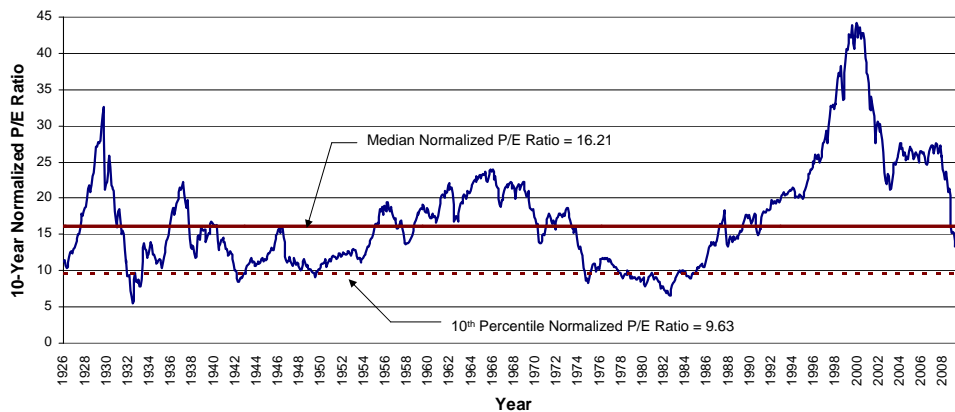
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## How Do Markets Work If Investors Use Both Their Minds And Their Emotions To Make Decisions?

- Market prices vary more than “true values”.
- When greed prevails, markets overshoot true value on the high side and set the stage for subsequent below-average returns. Example: the stock market’s irrational exuberance toward the end of the 1990s.
- When fear and panic rule, markets overshoot true value on the down side and set the stage for subsequent above-average returns.

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## S&P 500\* 10-Year Normalized Price-to-Earnings (P/E) Ratio\*\* 1926 -- 2009



\*Includes predecessor indices.

\*\*The normalized P/E ratio is computed by dividing the S&P 500 price level by the S&P 500 earnings normalized over the preceding 10 years.

Source: ©2010 Compiled by Gibson Capital, LLC using data from Robert Shiller.

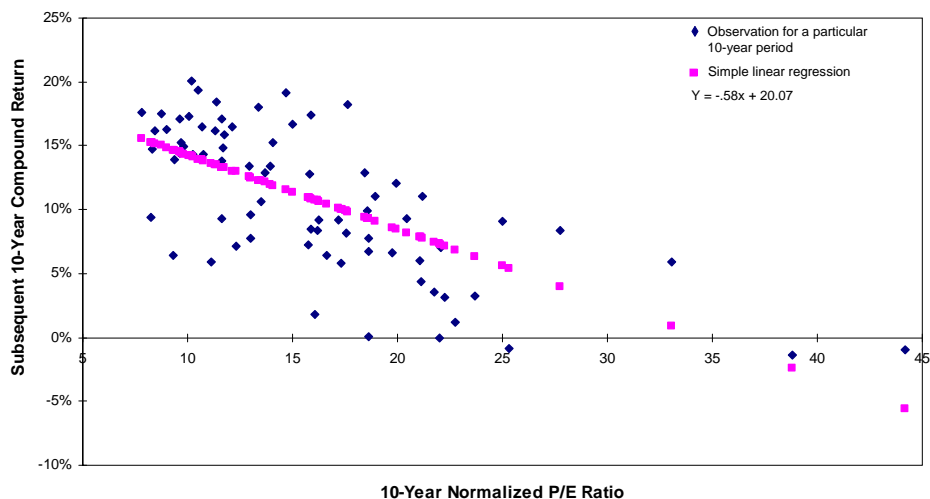
## S&P 500 10-Year Normalized P/E Ratio & Subsequent 10-Year Compound Annual Return

10-Yr. Normalized P/E Ratio	Below 12	12 to 16	16 to 20	Above 20
Average 10-Yr. Compound Return	14.88%	12.91%	8.50%	4.33%
Range of Historical Outcomes:				
75 <sup>th</sup> %	17.11%	16.50%	10.00%	7.40%
50 <sup>th</sup> %	15.59%	13.11%	8.42%	4.00%
25 <sup>th</sup> %	14.32%	9.33%	6.63%	0.92%
Number of 10-Yr. Periods	26	16	17	16
Average Equity Risk Premium*	8.25%	7.94%	4.14%	-1.30%

\* For any given 10-year period, the Equity Risk Premium is the compound annual return on the S&P 500 (with dividends reinvested) minus the compound annual return on Long-Term Government Bonds. Calculated using data from Ibbotson Associates and Morningstar.  
Data from 1926 through 2009.

Source: ©Gibson Capital, LLC 2010. Compiled using data from Robert Shiller and Ibbotson Associates.

## S&P 500 10-Year Normalized P/E Ratio & Subsequent 10-Year Compound Annual Return 1926 -- 2009



Source: ©2010 Compiled by Gibson Capital, LLC using data from Robert Shiller, Ibbotson Associates, and Morningstar.

## Estimating the Stock Market's Downside Risk Price-Only Returns to Reach Various Normalized Price-to-Earnings (P/E) Ratios\*

Historical Normalized P/E Ratio*		Beginning S&P 500 Price Level and [Normalized P/E Ratio]						
Percentile**	Value**	600 [10.85]	700 [12.66]	800 [14.47]	900 [16.28]	1000 [18.09]	1100 [19.90]	1200 [21.70]
50 <sup>th</sup>	16.21	49.34%	28.01%	12.01%	-0.44%	-10.39%	-18.54%	-25.33%
25 <sup>th</sup>	11.60	6.87%	-8.39%	-19.84%	-28.75%	-35.88%	-41.70%	-46.56%
10 <sup>th</sup>	9.63	-11.25%	-23.93%	-33.44%	-40.83%	-46.75%	-51.59%	-55.62%
5 <sup>th</sup>	8.87	-18.24%	-29.92%	-38.68%	-45.49%	-50.94%	-55.40%	-59.12%

\*The normalized P/E ratio is computed by dividing the S&P 500 price level by the S&P 500 earnings normalized over the preceding 10 years.

\*\*The percentiles describe a frequency distribution of historical normalized P/E ratios for the S&P 500 from 1926 through 2009. For example, historically the S&P 500 has been priced at less than:

16.21 times normalized earnings 50 percent of the time.

11.60 times normalized earnings 25 percent of the time.

9.63 times normalized earnings 10 percent of the time.

Using one of the "Beginning S&P 500 Price Levels" as a starting point and one of the "Percentile Values" as an ending point, the table shows the S&P 500 price level change in reaching a particular normalized P/E ratio value. For example, if the S&P 500 price level is currently 1000 (with a normalized P/E ratio of 18.09), the S&P 500 will fall -46.75 percent to reach a normalized P/E ratio of 9.63 (10th percentile). The S&P 500 has traded at or below this normalized P/E ratio 10 percent of the time from 1926 through 2009.

Source: ©Gibson Capital, LLC 2010. Compiled by Gibson Capital, LLC using data from Robert Shiller.

## A Troublesome Mismatch: Equity Time Horizon vs. Evaluation Horizon

- An investor who overreacts to short-term (daily, monthly, yearly) market ups and downs ceases to be a long-term investor.
- Stocks and other equities are investments for longer time horizons (10-20+ years).
- Equity asset class performance should therefore be evaluated over longer time horizons.
- Attaching too much significance to short-term equity returns fuels fear in down markets and greed in up markets.
- Emotional decision-making leads to poor investment decisions.

Source: ©2009 Gibson Capital, LLC



## Conclusion

- Emotions, particularly at market extremes, may collide with one's best course of action.
- “To buy when others are despondently selling and to sell when others are avidly buying requires the greatest fortitude and pays the greatest rewards.” Sir John M. Templeton

Source: ©2009 Gibson Capital, LLC

## Big Questions During the 1<sup>st</sup> Quarter of 2009

- Big Question #1: Will free enterprise survive?
  - If Yes:
    - Don't abandon equity investing.
    - Equity investments are for longer time horizons (10-20+ years).
    - A 10-year horizon is long enough for economic and equity market problems to resolve themselves.
    - In our judgment stocks will significantly outperform bonds and cash over the next 10 to 20 years.
  - If No:
    - A very different investment strategy is appropriate...
- Big Question #2: Can you live with unusually volatile equity markets until we are well on the road to recovery?

Source: ©2009 Gibson Capital, LLC

## Percentage Highest Return for Various Rolling Holding Periods 1926 -- 2009

	1-Year	5-Year	10-Year	20-Year
Treasury Bills	14%	5%	8%	0%
Long-Term Government Bonds	14%	8%	5%	3%
Long-Term Corporate Bonds	14%	18%	11%	5%
Total Interest-Generating Investments	42%	31%	24%	8%
Large Company Stocks (Equity)	57%	70%	76%	92%

Note: All figures are rounded to the nearest whole percentage. Due to rounding, columns may not sum to 100%.

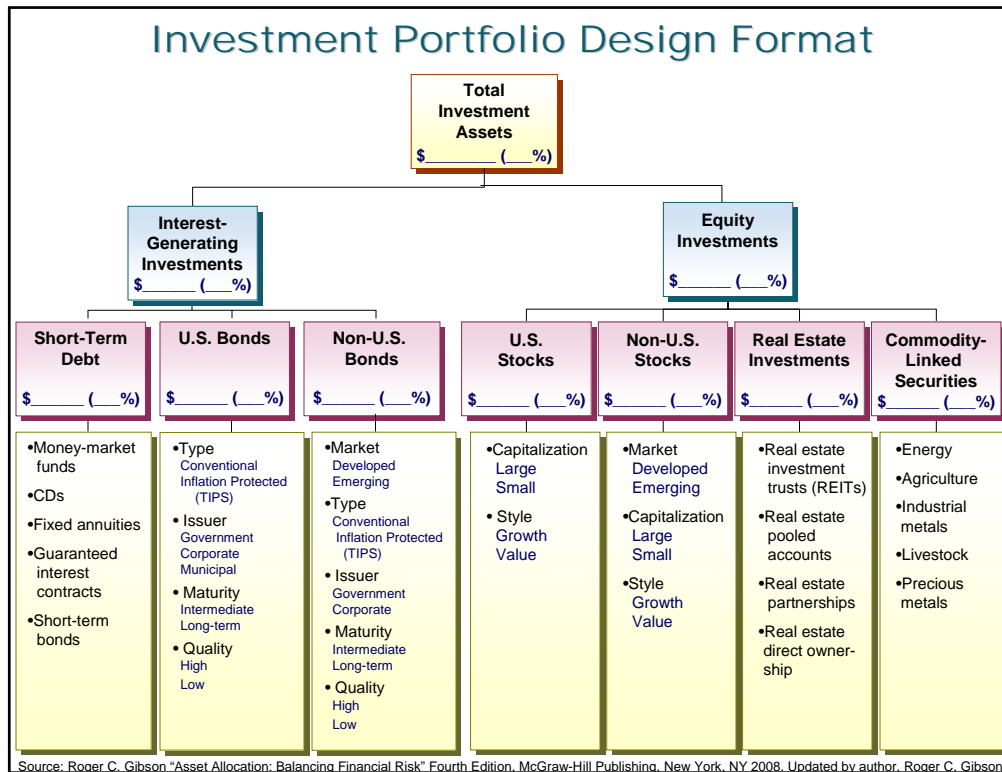
Source: ©Roger C. Gibson, 2010.

## Interest-Generating vs. Equity Investments

	Interest-Generating Investments	Equity Investments
Advantage	Less volatility	Long-term, real capital growth
Disadvantage	Inflation susceptibility	High volatility
Appropriate for	Short time horizons	Long time horizons

Source: Roger C. Gibson "Asset Allocation: Balancing Financial Risk" Fourth Edition, McGraw-Hill Publishing, New York, NY 2008.

## Investment Portfolio Design Format



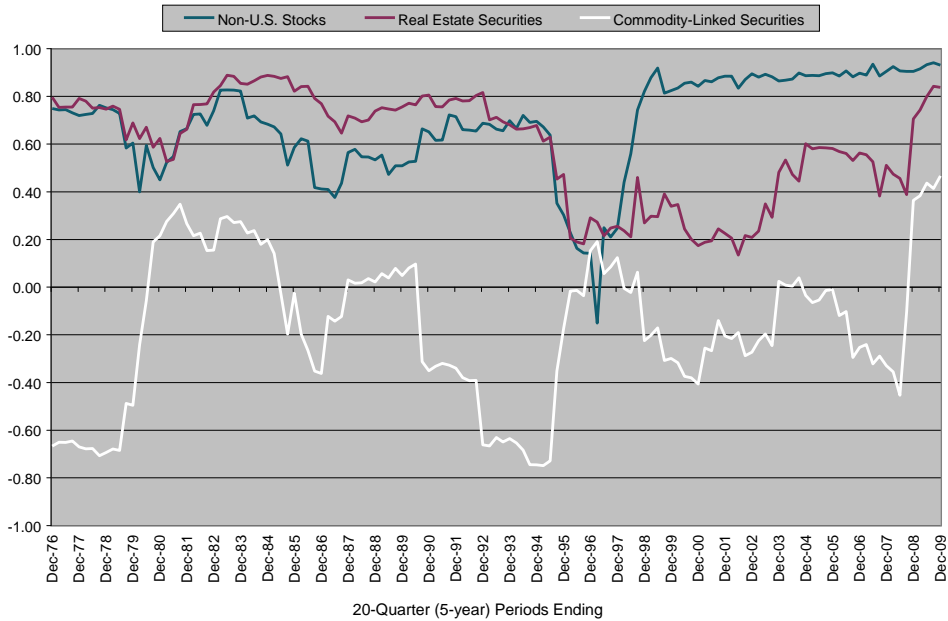
Source: Roger C. Gibson "Asset Allocation: Balancing Financial Risk" Fourth Edition, McGraw-Hill Publishing, New York, NY 2008. Updated by author, Roger C. Gibson.

## The Carnage and the Recovery

	Total Returns in Percent	
	2008	2009
Treasury Bills	1.8	0.2
Long-Term Government Bonds	22.7	-12.2
Long-Term Corporate Bonds	-3.9	16.8
U.S. Stocks	-37.0	26.5
Non-U.S. Stocks	-43.4	32.5
Real Estate Securities	-37.7	28.0
Commodity-Linked Securities	-46.5	13.5

Source: ©2010 Roger C. Gibson

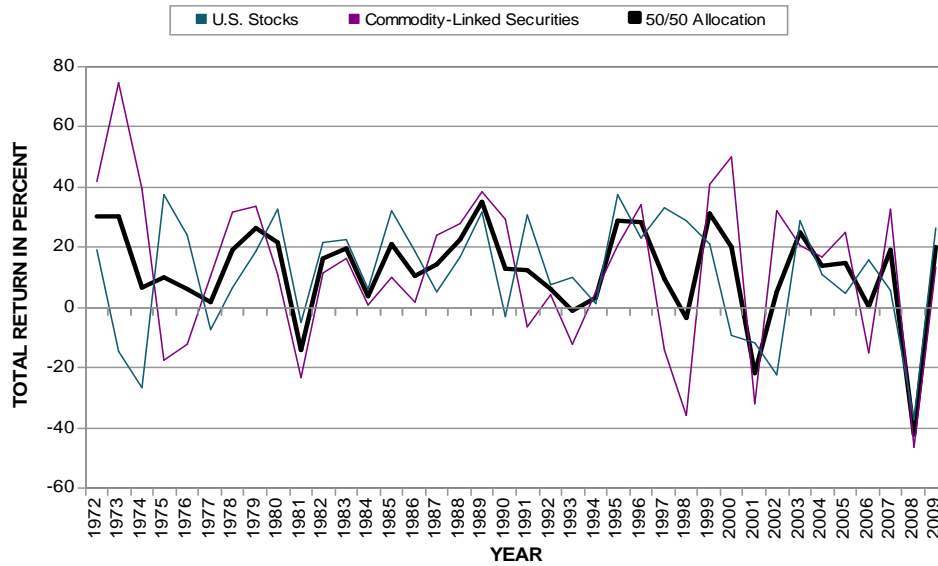
# Correlations vs. U.S. Stocks



Source: ©Roger C. Gibson, 2010.

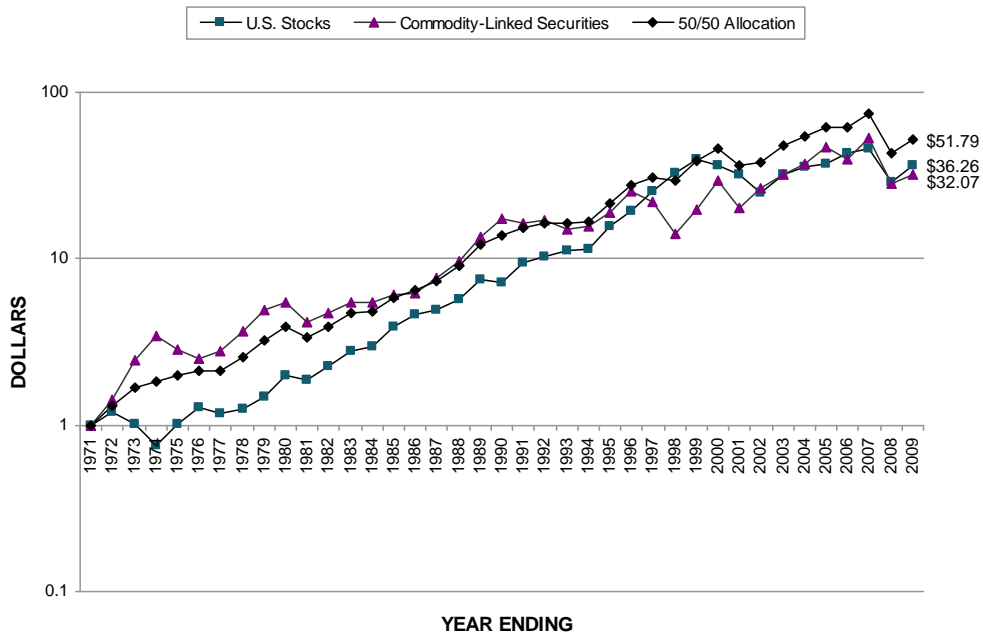
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## U.S. Stocks vs. Commodity-Linked Securities vs. 50/50 Allocation



Source: ©Roger C. Gibson, 1999. Updated by author.

## Growth of \$1: U.S. Stocks vs. Commodity-Linked Securities vs. 50/50 Allocation



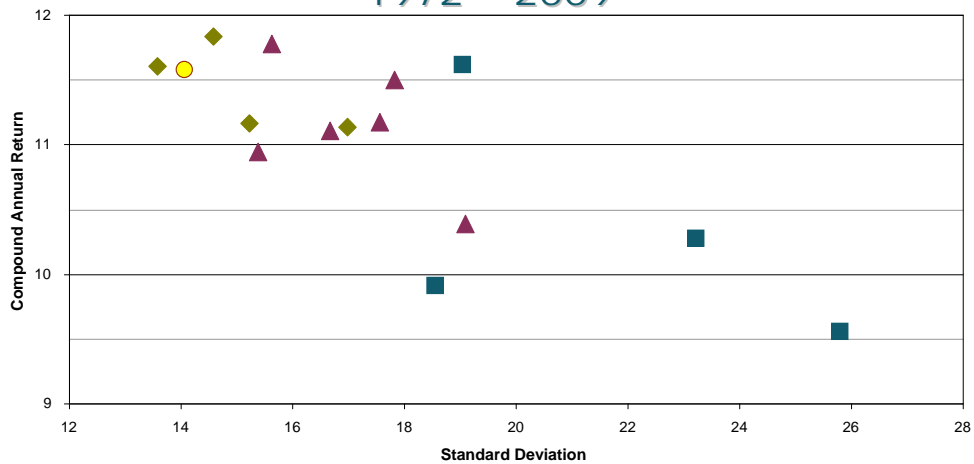
Source: ©Roger C. Gibson, 1999. Updated by author.

## Highly Correlated Asset Classes

Year	S&P 500	MSCI EAFE	Difference	50/50 Portfolio
1997	33.25%	2.06%	31.19%	17.65%
1998	28.77%	20.33%	8.43%	24.55%
1999	20.99%	27.30%	-6.31%	24.14%
2000	-9.13%	-13.96%	4.83%	-11.54%
2001	-11.88%	-21.21%	9.32%	-16.54%
2002	-22.12%	-15.66%	-6.46%	-18.89%
2003	28.69%	39.17%	-10.47%	33.93%
2004	10.88%	20.70%	-9.81%	15.79%
2005	4.89%	14.02%	-9.12%	9.45%
2006	15.81%	26.86%	-11.05%	21.33%
Compound Return 1997-2001	10.70%	1.17%		6.07%
Compound Return 2002-2006	6.18%	15.43%		10.81%
Compound Return 1997-2006	8.42%	8.06%		8.41%
Standard Deviation 1997-2006	19.15%	20.92%		18.88%

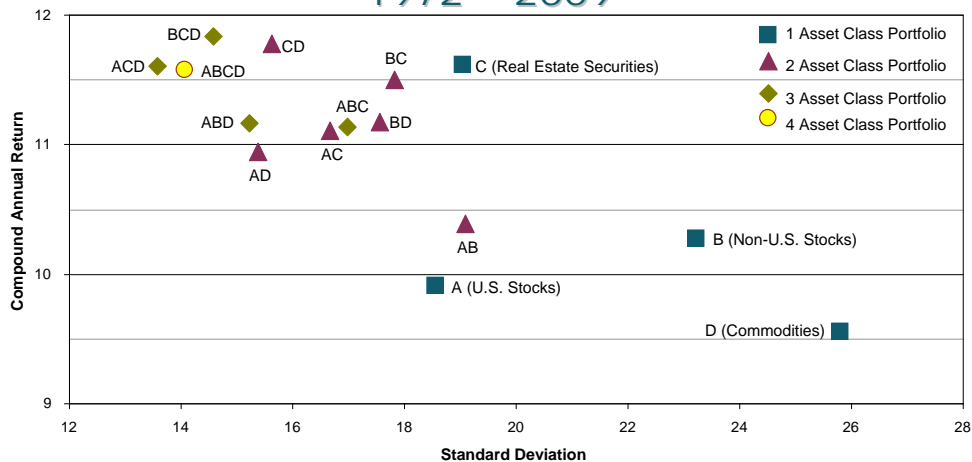
Source: ©Gibson Capital, LLC 2009. Data from S&P 500 and MSCI EAFE.

## Fifteen Equity Portfolios 1972 -- 2009



Source: ©Roger C. Gibson, "Asset Allocation and the Rewards of Multiple-Asset-Class Investing", 1998. Updated by author.

## Fifteen Equity Portfolios 1972 -- 2009



**Single-Asset-Class Portfolios**

A --- U.S. Stocks (S&P 500 Index)  
 B --- Non-U.S. Stocks (MSCI EAFE Index)  
 C --- Real Estate Securities (FTSE NAREIT Equity REITs Index)  
 D --- Commodity-Linked Securities (S&P GSCI Index)

**Two-Asset-Class Portfolios: Equally Allocated, Annually Rebalanced**

AB --- U.S. Stocks, Non-U.S. Stocks  
 AC --- U.S. Stocks, Real Estate Securities  
 AD --- U.S. Stocks, Commodity-Linked Securities  
 BC --- Non-U.S. Stocks, Real Estate Securities  
 BD --- Non-U.S. Stocks, Commodity-Linked Securities  
 CD --- Real Estate Securities, Commodity-Linked Securities

**Three-Asset-Class Portfolios: Equally Allocated, Annually Rebalanced**

ABC --- U.S. Stocks, Non-U.S. Stocks, Real Estate Securities  
 ABD --- U.S. Stocks, Non-U.S. Stocks, Commodity-Linked Securities  
 ACD --- U.S. Stocks, Real Estate Securities, Commodity-Linked Securities  
 BCD --- Non-U.S. Stocks, Real Estate Securities, Commodity-Linked Securities

**Four-Asset-Class Portfolio: Equally Allocated, Annually Rebalanced**

ABCD --- U.S. Stocks, Non-U.S. Stocks, Real Estate Securities, Commodity-Linked Securities

Source: ©Roger C. Gibson, "Asset Allocation and the Rewards of Multiple-Asset-Class Investing", 1998. Updated by author.

## Fifteen Equity Portfolios Performance Statistics 1972 -- 2009

Compound Annual Returns & Future Values of \$1.00 Ranked High to Low			Standard Deviations (Volatility) Ranked Low to High		Sharpe Ratios Ranked High to Low	
	%	\$		%		
BCD	11.84	70.29	ACD	13.57	ACD	0.51
CD	11.78	68.84	ABCD	14.07	BCD	0.50
C	11.62	65.18	BCD	14.57	ABCD	0.49
ACD	11.60	64.83	ABD	15.22	CD	0.47
ABCD	11.58	64.37	AD	15.37	ABD	0.44
BC	11.50	62.52	CD	15.61	AD	0.43
BD	11.17	55.95	AC	16.67	BC	0.41
ABD	11.16	55.80	ABC	16.97	AC	0.41
ABC	11.13	55.21	BD	17.56	ABC	0.40
AC	11.11	54.77	BC	17.83	BD	0.40
AD	10.95	51.79	A	18.56	C	0.40
AB	10.39	42.80	C	19.05	AB	0.34
B	10.28	41.13	AB	19.08	A	0.32
A	9.91	36.26	B	23.23	B	0.30
D	9.56	32.07	D	25.81	D	0.28

**Average Performance Statistics: Four-, Three-, Two- & One-Asset-Class Portfolios**

Compound Annual Returns & Future Values of \$1.00 Ranked High to Low			Standard Deviations (Volatility) Ranked Low to High		Sharpe Ratios Ranked High to Low	
	%	\$		%		
<b>Four</b>	11.58	64.37	<b>Four</b>	14.07	<b>Four</b>	0.49
<b>Three</b>	11.44	61.54	<b>Three</b>	15.09	<b>Three</b>	0.46
<b>Two</b>	11.15	56.11	<b>Two</b>	17.02	<b>Two</b>	0.41
<b>One</b>	10.34	43.66	<b>One</b>	21.66	<b>One</b>	0.32

Source: ©Roger C. Gibson, "Asset Allocation and the Rewards of Multiple-Asset-Class Investing", 1998. Updated by author.

## Performance Statistics 1972 -- 2009

### Entire Period

1972--2009	Portfolio A U.S. Stocks		Portfolio B Non-U.S. Stocks		Portfolio C Real Estate Securities		Portfolio D Commodity-Linked Securities		Portfolio ABCD Equal Allocation	
	Return <sup>1</sup>	Rank	Return <sup>1</sup>	Rank	Return <sup>1</sup>	Rank	Return <sup>1</sup>	Rank	Return <sup>1</sup>	Rank
Compound Annual Return	9.91	4	10.28	3	<b>11.62</b>	<b>1</b>	9.56	5	11.58	2
Future Value \$1	\$36.26		\$41.13		<b>\$65.18</b>		\$32.07		\$64.37	
Standard Deviation	18.56		23.23		19.05		25.81		<b>14.07</b>	
Sharpe Ratio	.32		.30		.40		.28		<b>.49</b>	

### By Decade

	Portfolio A U.S. Stocks		Portfolio B Non-U.S. Stocks		Portfolio C Real Estate Securities		Portfolio D Commodity-Linked Securities		Portfolio ABCD Equal Allocation	
	Return <sup>1</sup>	Rank	Return <sup>1</sup>	Rank	Return <sup>1</sup>	Rank	Return <sup>1</sup>	Rank	Return <sup>1</sup>	Rank
1970s <sup>2</sup>	5.08%	5	10.53%	4	11.07%	3	<b>21.96%</b>	<b>1</b>	14.13%	2
1980s	17.55%	2	<b>22.77%</b>	<b>1</b>	15.64%	4	10.64%	5	17.22%	3
1990s	<b>18.21%</b>	<b>1</b>	7.33%	4	9.14%	3	3.89%	5	10.80%	2
2000s	-0.95%	5	1.58%	4	<b>10.62%</b>	<b>1</b>	4.99%	3	5.05%	2
# of below-average returns	2		3		1		2		<b>0</b>	

<sup>1</sup> Compound Annual Return

<sup>2</sup> 1972 - 1979

Best performance numbers are highlighted and in blue.

Source: ©Roger C. Gibson, 2010.

## "Frame-of-Reference" Risk

Asset Class	Total Return
Commodity-Linked Securities	29%
Real Estate Securities	16%
Non-U.S. Stocks	2%
U.S. Stocks	-15%
Average	8%

Asset Class	Total Return
U.S. Stocks	29%
Non-U.S. Stocks	16%
Real Estate Securities	2%
Commodity-Linked Securities	-15%
Average	8%

Source: ©Roger C. Gibson, 2004.



## "Frame-of-Reference" Risk

Year	(1) Portfolio ABCD Equal Allocation*	(2) Portfolio A U.S. Stocks	(3) = (1) – (2) Difference ABCD minus A
1994	4.46	1.29	3.17
1995	21.16	37.47	-16.31
1996	24.65	23.08	1.57
1997	10.38	33.25	-22.87
1998	-1.04	28.77	-29.81
1999	21.14	20.99	0.15
2000	13.26	-9.13	22.39
2001	-12.77	-11.88	-0.89
2002	-0.47	-22.12	21.65
2003	31.43	28.69	2.74
2004	20.00	10.88	9.12
2005	14.00	4.89	9.11
Standard Deviation	12.70	19.56	
Simple Average Return	12.18	12.18	
Compound Annual Return	11.49	10.52	
Sharpe Ratio	0.65	0.44	
Future Value \$1	\$3.69	\$3.32	
Compound Return 1994 - 1999	13.05	23.55	
Compound Return 2000 - 2005	9.96	-1.14	

\* Annually rebalanced equal allocation across U.S. Stocks, Non-U.S. Stocks, Real Estate Securities, and Commodity-Linked Securities.

Source: ©Roger C. Gibson, 2008.

## Has Multiple-Asset-Class Investing Failed?

Multiple-asset-class investing...

- Promises to deliver long-term portfolio returns that are
  - higher than the weighted-average return of the asset classes comprising the portfolio
  - less volatile than the weighted-average volatility of the asset classes comprising the portfolio
- Has delivered on that promise in the past\*
- Will deliver on that promise in the future
- Mitigates risk but does not eliminate it

"You cannot hedge the world." Paul Volker

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