

# THE MANY FACES OF RISK

**IFBEP Administrators and Trustees Institute**

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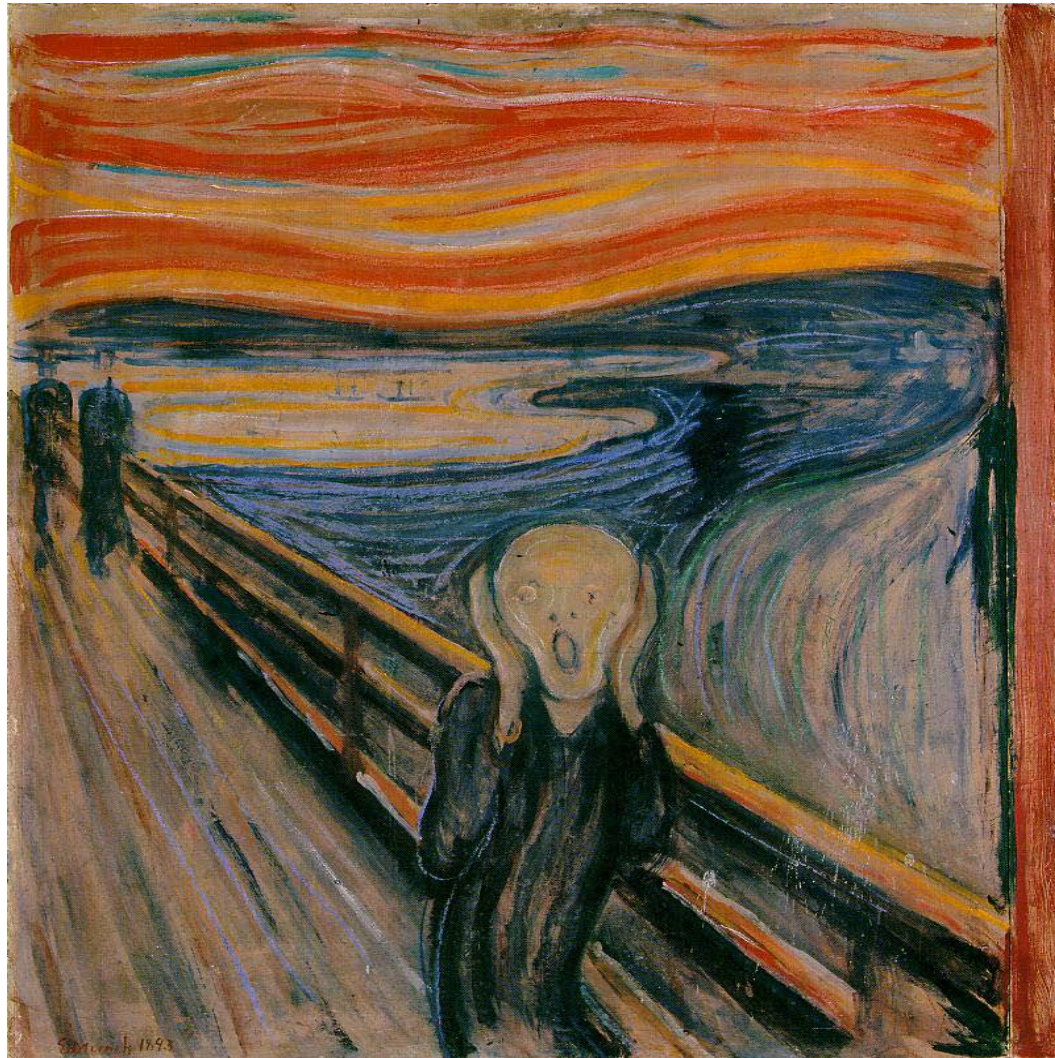
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*Washington, D.C.*

# RISK !!

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# Many Faces of RISK

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Uncertainty

Volatility

Not  
Meeting  
Investment  
Objectives

Losing  
Money!



# Outline

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- Fundamentals of “Risk”
- Defining and Managing Risk – Total Plan
  - ▣ Traditional View
  - ▣ Contemporary View
- Selecting and Monitoring Investment Managers
- Discussion

# Fundamentals of Risk

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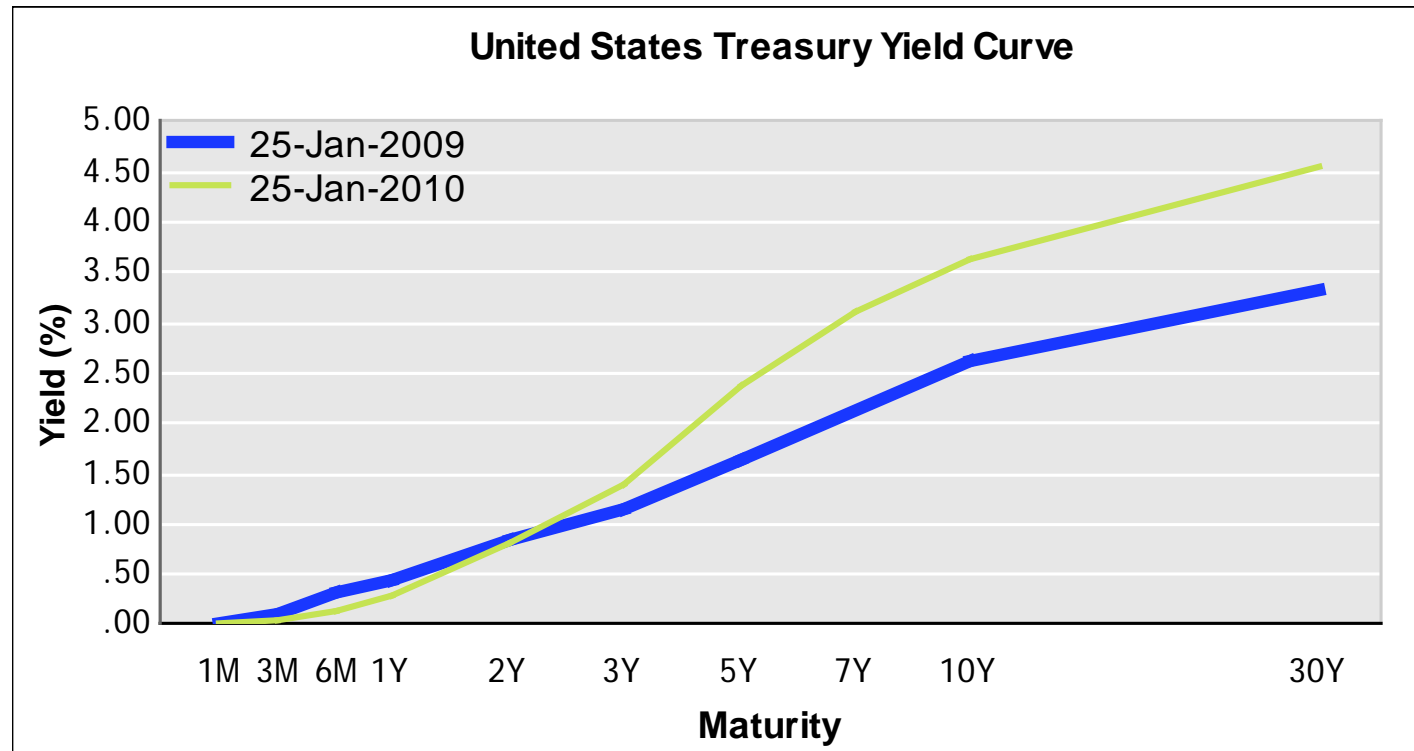
## Key Definitions

- “Risk Free” Assets
- Credit Risk
- Equity Risk

# Fundamentals of Risk

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## □ “Risk-Free” US Treasury Securities



# Fundamentals of Risk

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## Key risks in US Treasuries

- Interest rate risk
  - ▣ Price risk (if interest rates rise)
  - ▣ Reinvestment risk (if interest rates fall)
  
- Inflation risk (for “Nominal” Treasuries)
  - ▣ Treasury Inflation-Protected Securities (TIPS)

# Fundamentals of Risk

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CREDIT RATINGS				
Credit Risk	Moody's	Standard & Poor's	Fitch	Duff & Phelps
<b>INVESTMENT GRADE</b>				
Highest quality	Aaa	AAA	AAA	AAA
High quality (very strong)	Aa	AA	AA	AA
Upper medium grade (strong)	A	A	A	A
Medium grade	Baa	BBB	BBB	BBB
<b>NOT INVESTMENT GRADE</b>				
Lower medium grade (somewhat speculative)	Ba	BB	BB	BB
Low grade (speculative)	B	B	B	B
Poor quality (may default)	Caa	CCC	CCC	CCC
Most speculative	Ca	CC	CC	CC
No interest being paid or bankruptcy petition filed	C	C	C	C
In default	C	D	D	D

## Credit Risk

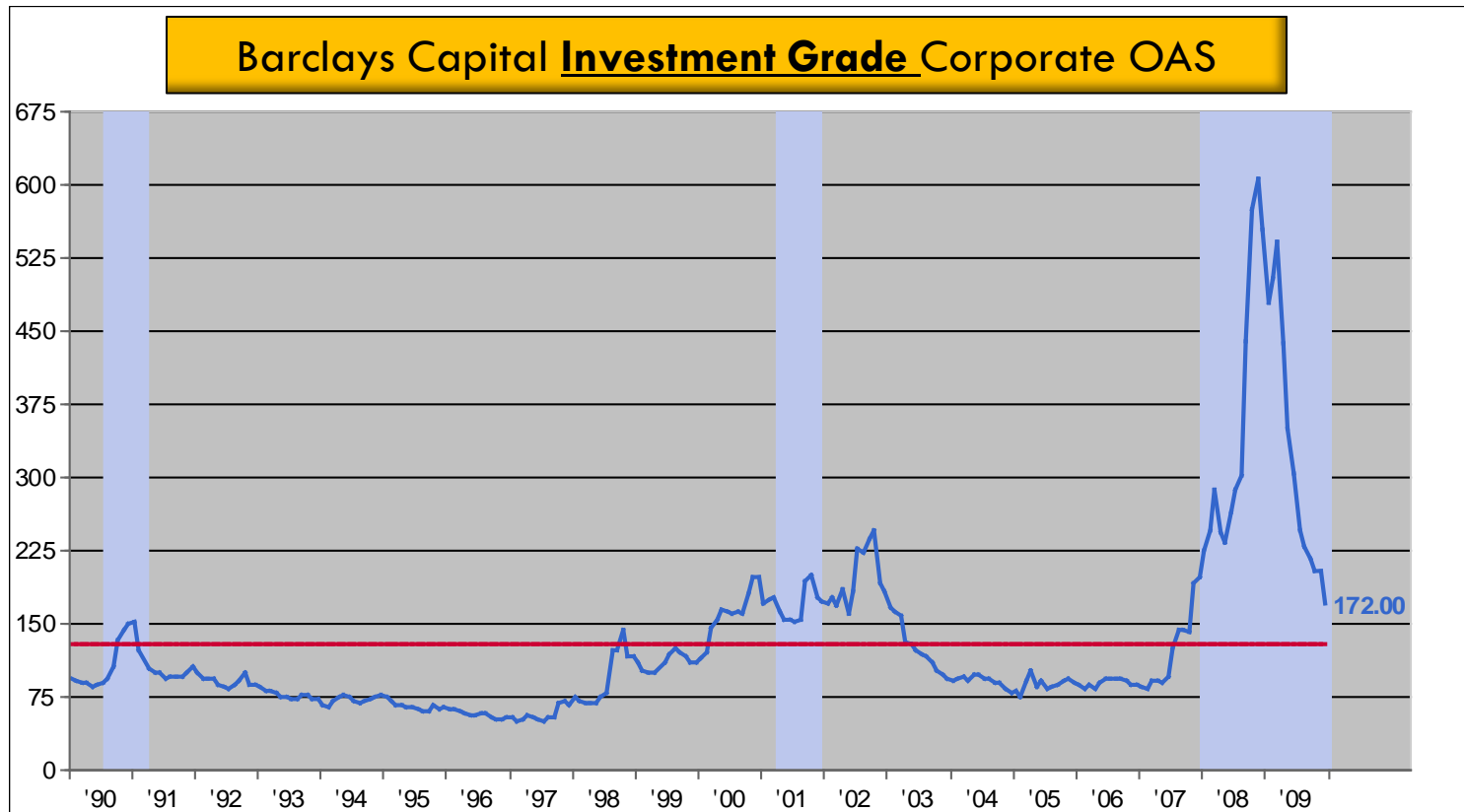
- Risk of borrower default
- Bondholders have priority claims ahead of stockholders
- How credit worthy is the bond issuer?

Note: Ratings shown by general category without modifiers

# Fundamentals of Risk

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- Credit spread – “risk premium” over comparable Treasuries

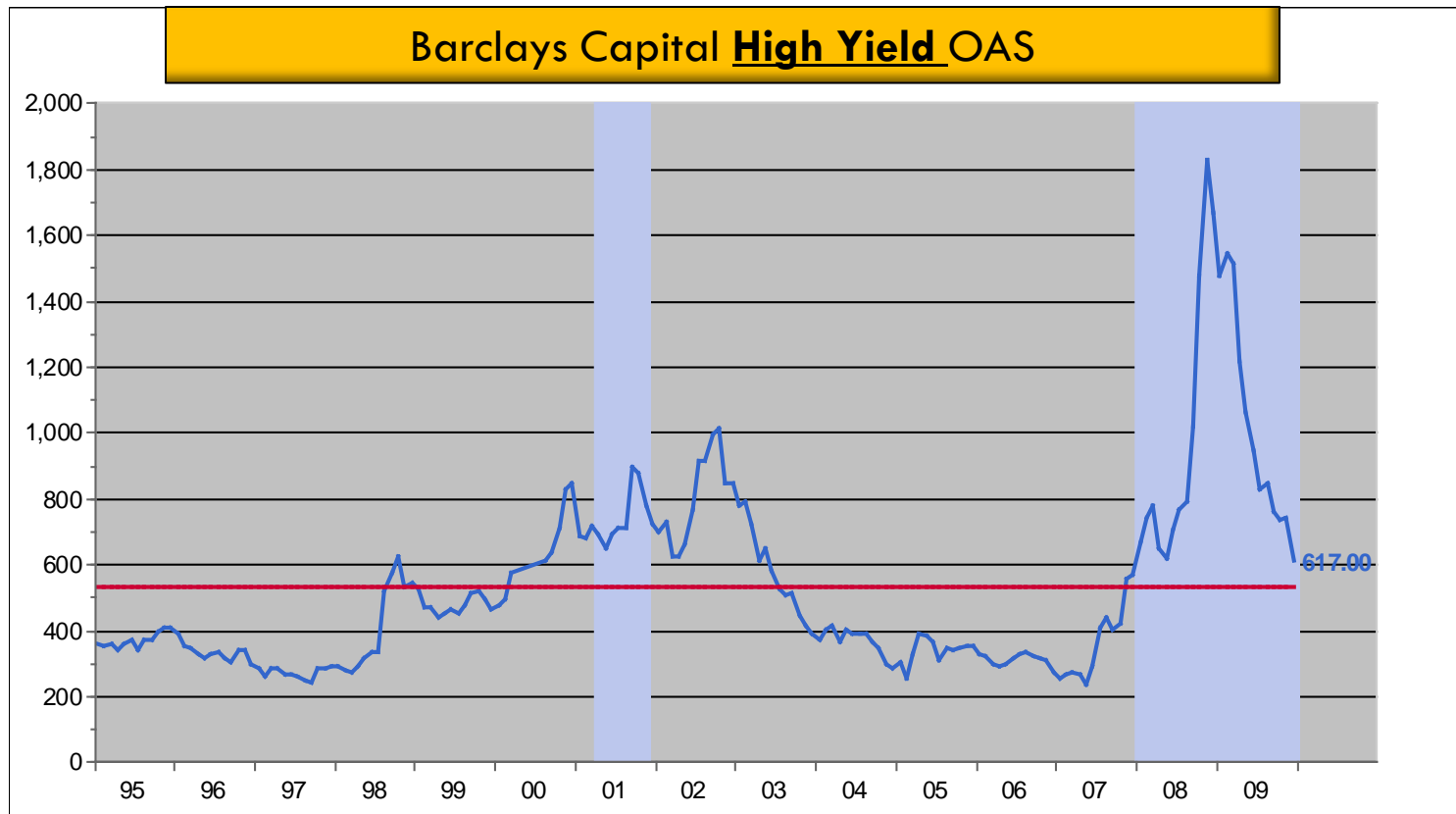


Source: FactSet. Spread in basis points (bp).

# Fundamentals of Risk

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- Credit spread – “risk premium” over comparable Treasuries



Source: FactSet. Spread in basis points (bp).

# Fundamentals of Risk

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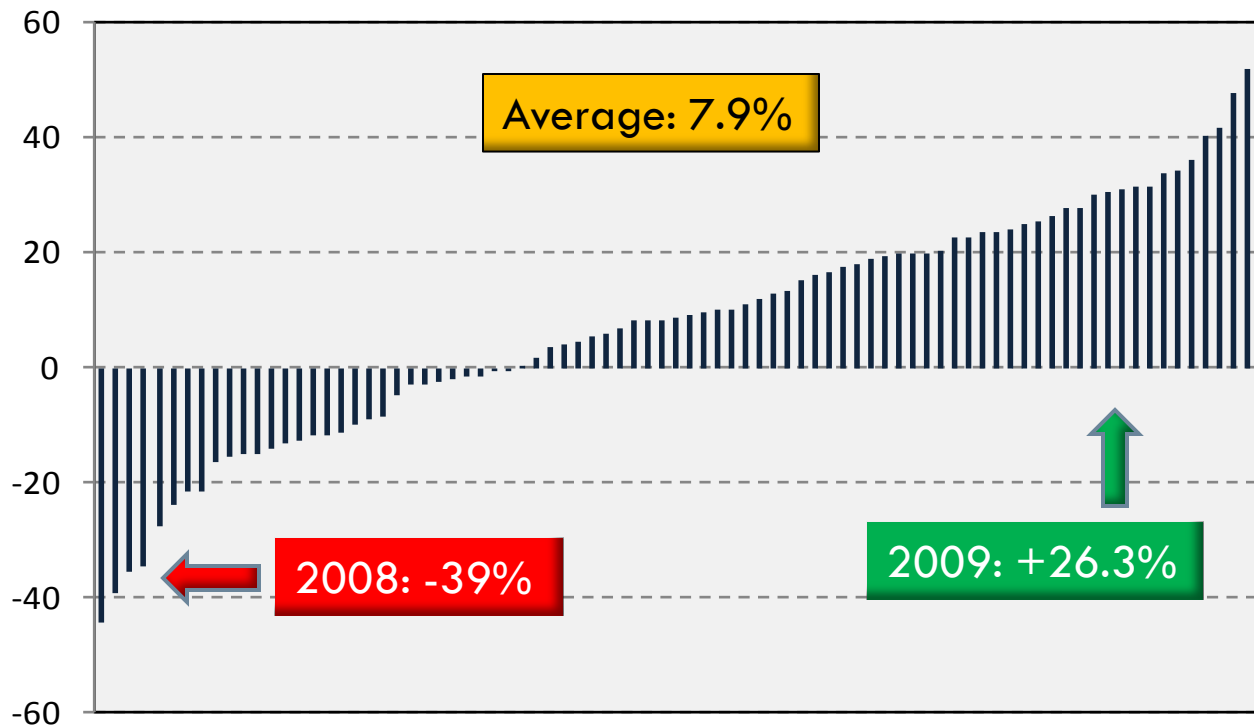
- Equity “risk premium” – the return investors demand in excess of risk-free rate for taking “equity risk” (e.g., the uncertainty of the present value of a company’s future free cash flows)
- Equity risk premiums are unstable and change through time given changes in investor “risk aversion”
  - ▣ As uncertainty increases, the “risk premium” investors demand for investing in equities increases and stock prices will fall (all else being equal)
  - ▣ As uncertainty decreases, the “risk premium” narrows and stock prices will rise (all else being equal)

# Fundamentals of Risk

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## □ Equity “Risk Premium” - Historical perspective

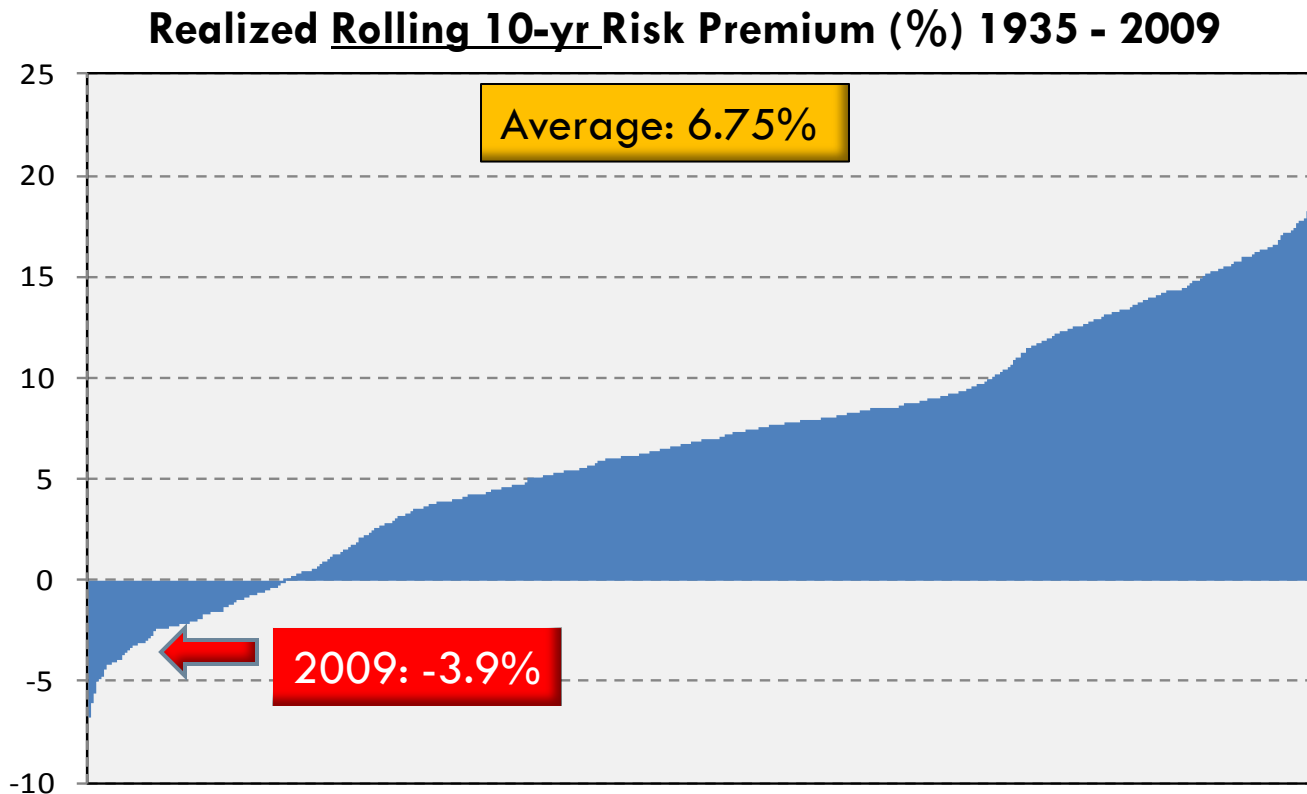
Realized Annual Risk Premium (%) 1926 - 2009



# Fundamentals of Risk

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- Realized equity “risk premium” over the past 10 years is negative

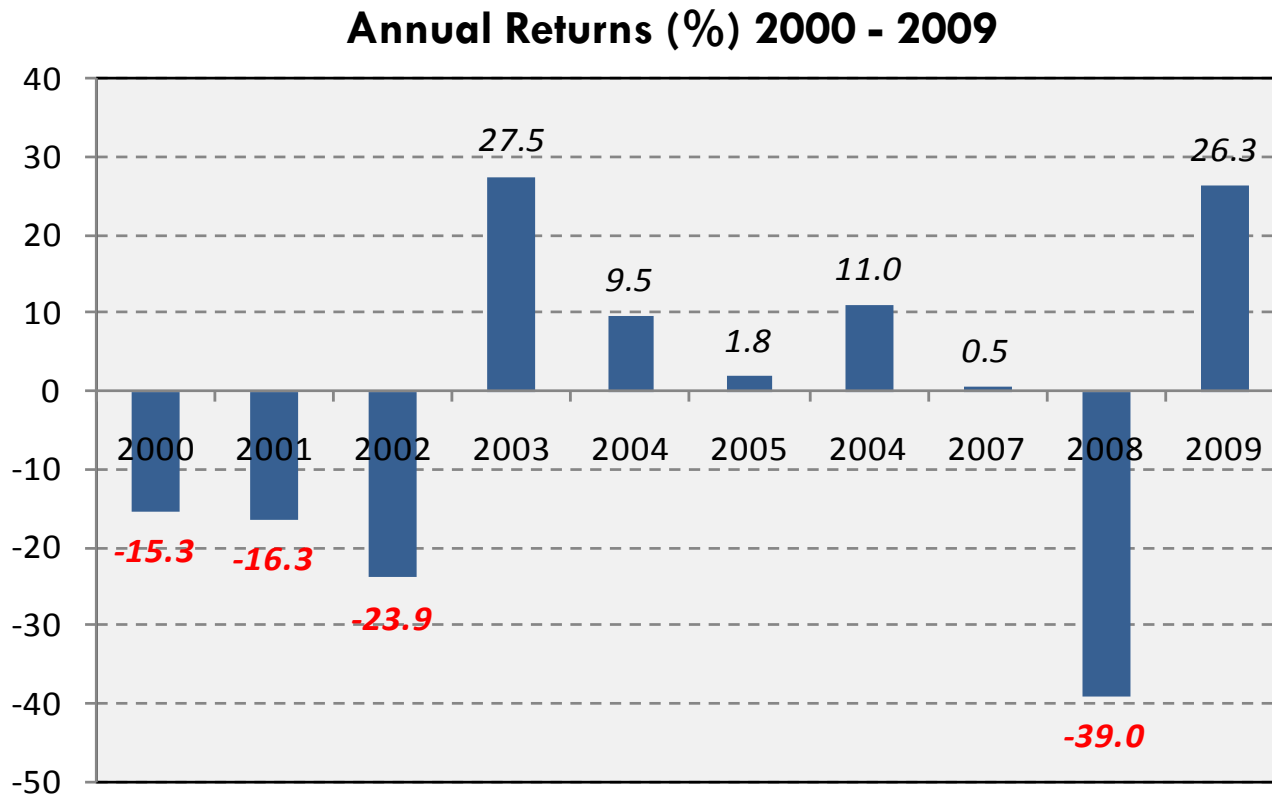


Source: Wilshire Compass, IFS. Equity market reflects S&P 500 Index.

# Fundamentals of Risk

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- Realized equity “risk premium” - Past decade



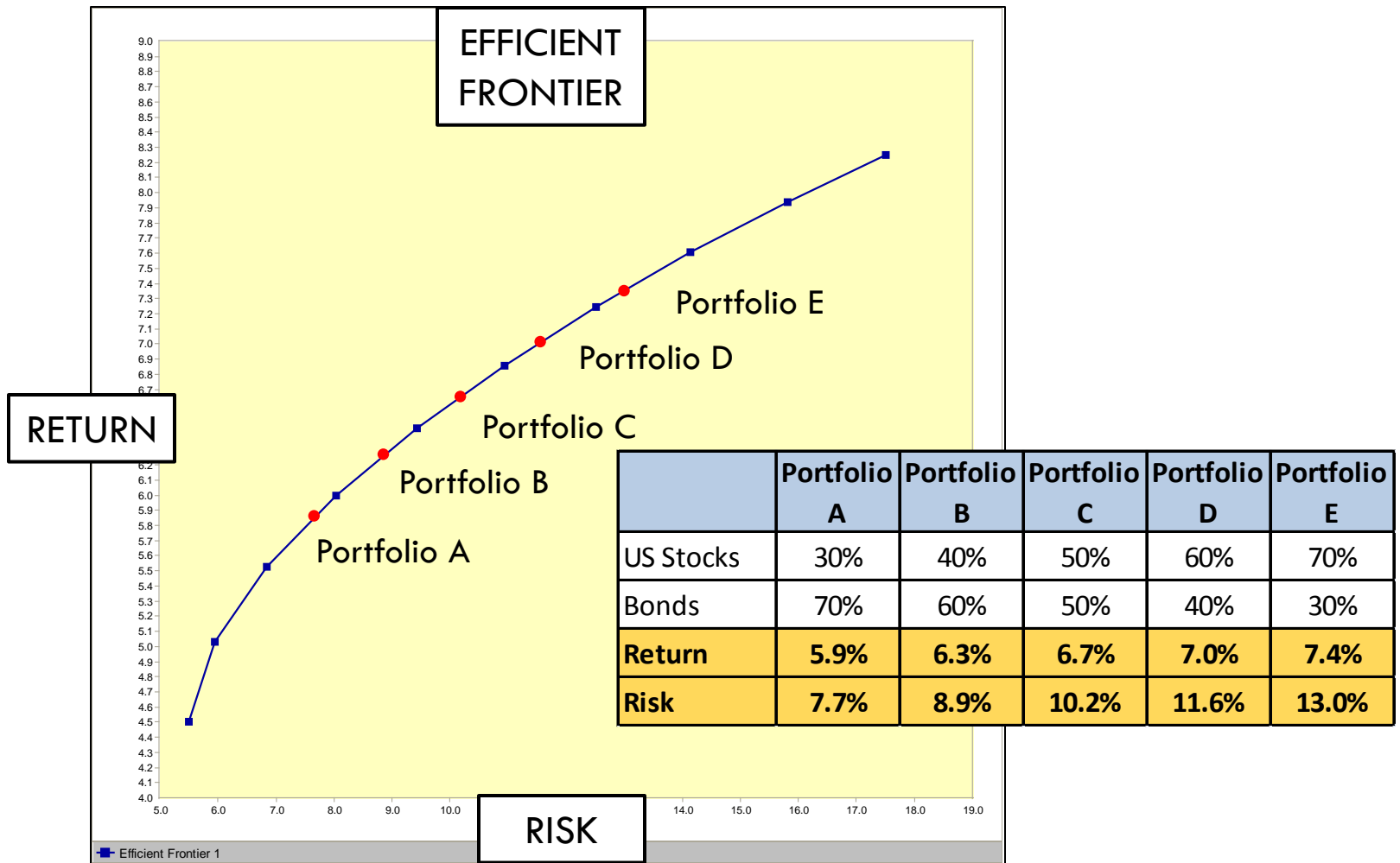
Source: Wilshire Compass, IFS. Equity market reflects S&P 500 Index.

# Risk – Asset Allocation

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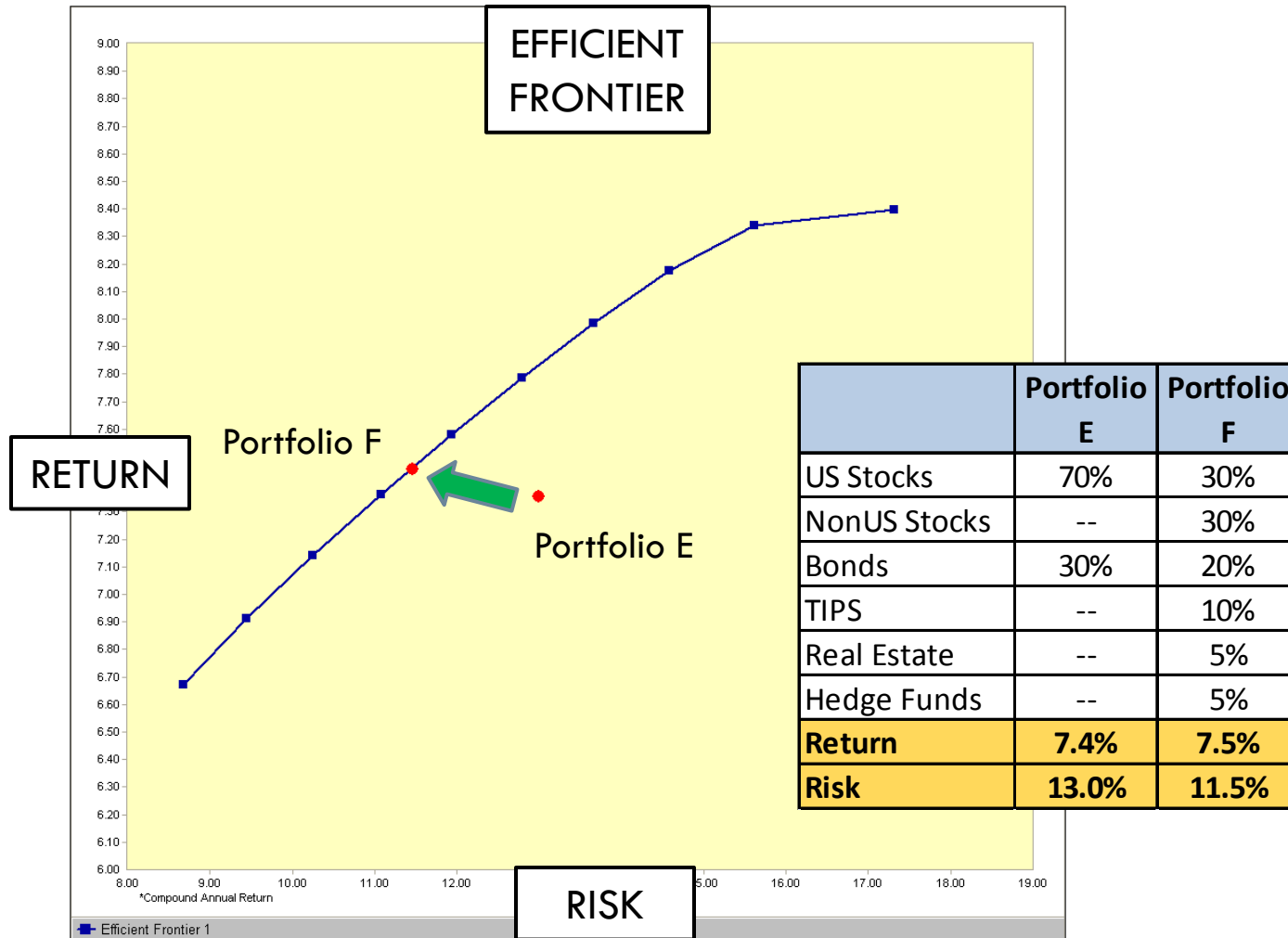
- Investment Policy
  - ▣ Define investment objectives
  - ▣ Permitted and prohibited asset classes
    - US Equities
    - Non-US Equities (developed and emerging markets)
    - Bonds (investment grade, high yield, TIPS, non-US)
    - Real Estate
    - Other (hedge funds, private markets, etc.)
  - ▣ Permitted and prohibited securities and strategies
  - ▣ Establish target asset allocation (with rebalancing ranges) and specify Policy Index in order to evaluate performance

# Risk – Asset Allocation



Source: Deterministic model long-term return and risk based on IFS' 2009 Capital Market Assumptions. For illustration purposes only.

# Risk – Asset Allocation



Source: Deterministic model long-term return and risk based on IFS' 2009 Capital Market Assumptions. For illustration purposes only.

# Risk – Asset Allocation

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## □ “Risk” Illustration – Stochastic Modeling

### **1 Year Distribution of Returns and Market Value** **(Beginning Value: \$100 Million)**

	Portfolio E		Portfolio F	
	Return	Market Value	Return	Market Value
10th Percentile	25.7%	\$125.7	23.3%	\$123.3
25th Percentile	16.2%	\$116.2	15.4%	\$115.4
50th Percentile	7.1%	\$107.1	7.2%	\$107.2
75th Percentile	-0.9%	\$99.1	0.0%	\$100.0
90th Percentile	-7.0%	\$93.0	-5.8%	\$94.2

# Risk – Asset Allocation

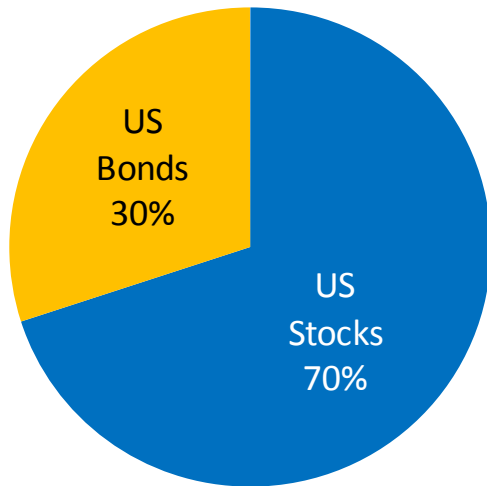
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- Rebalancing – establish long-term target allocations and regularly rebalance
  - ▣ When asset class “outperforms” others (exceeds range) reduce exposure
  - ▣ When asset class “underperforms” others (below range) increase exposure
  - ▣ Process essentially holds various risk premiums through market / economic cycles and rebalances under assumption returns are “mean reverting” (tend to return to a long-term average)
- Liability-Driven Investing (LDI)
- Increasing focus in industry on managing asset allocation and rebalancing decisions more dynamically / opportunistically

# Contemporary View of Risk

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## “Capital Allocation”

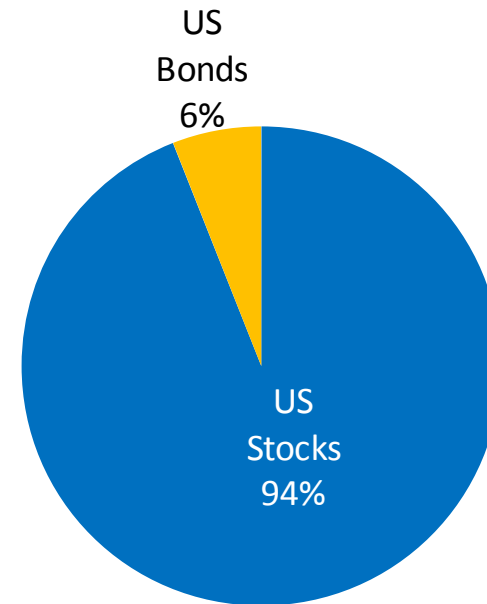


Long-Term Return: 7.4%

Long-Term Risk: 13.0%



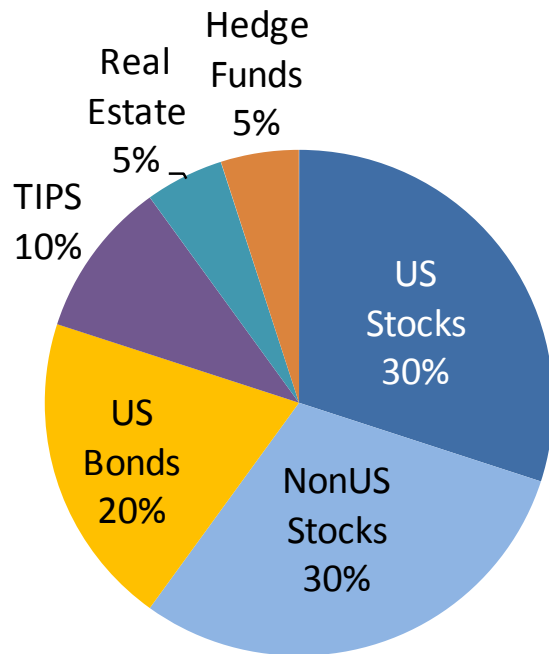
## “Risk Allocation”



# Contemporary View of Risk

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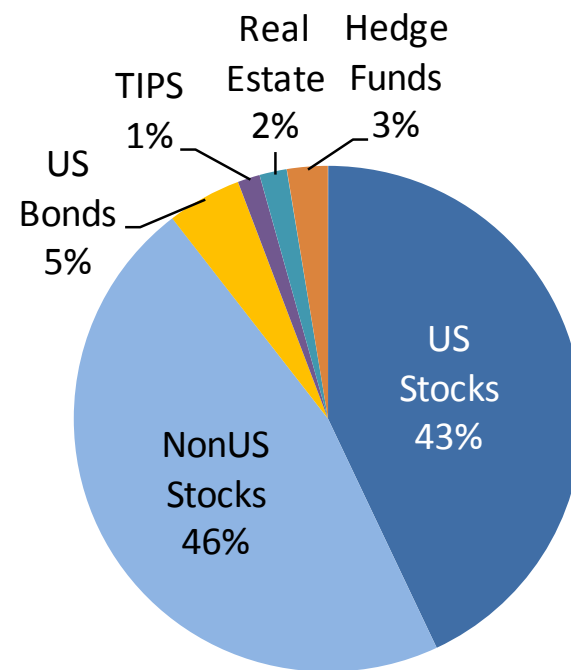
## “Capital Allocation”



Long-Term Return: 7.5%

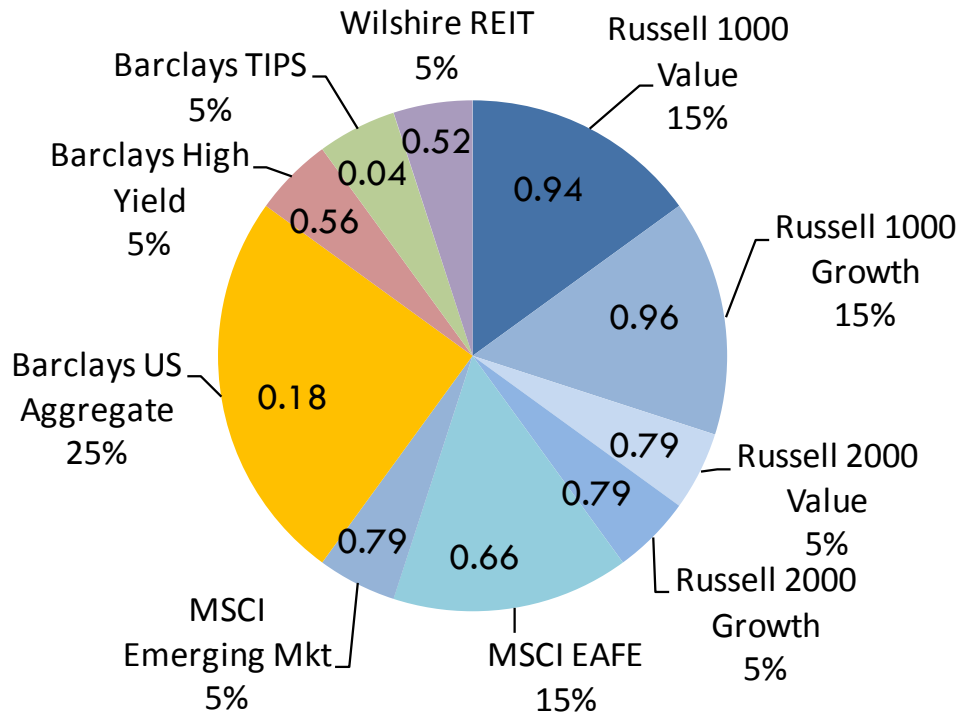
Long-Term Risk: 11.5%

## “Risk Allocation”



# Contemporary View of Risk

## Correlations to S&P 500 Index



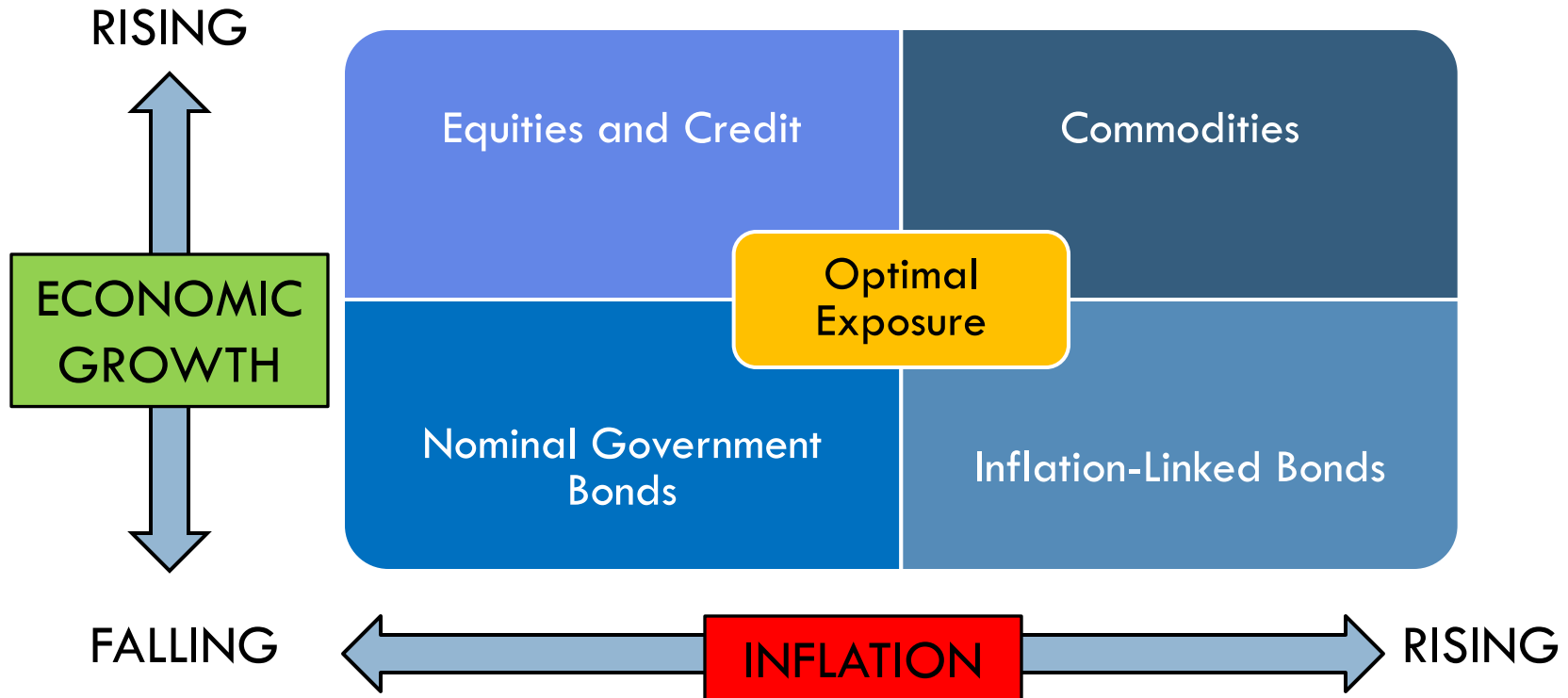
**Total Portfolio Correlation to S&P 500 Index: 0.94**

Source: Data per Wilshire Compass. Index Correlation period begins 1/86 except for TIPS (10/97) and Emg Mkts (1/99) through 12/09. Total portfolio correlation period 1/99 – 12/99.

# Contemporary View of Risk

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- Asset classes (or “risk exposures”) perform differently under varying economic “regimes”



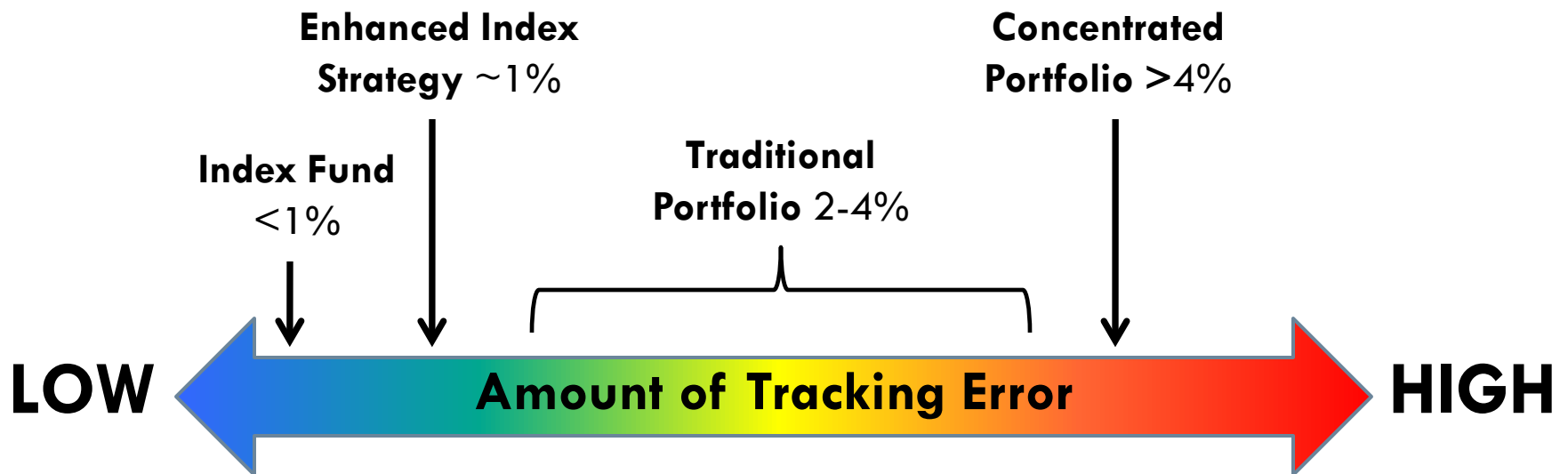
# Risk – Investment Managers

- Amount of investment discretion (“risk”) given to investment managers normally defined in written investment guidelines (for commingled funds, defined within governing documents)
- Investment managers tend to view portfolio risk relative to their established performance benchmark
  - ▣ Overweight / Underweight sectors or industries
  - ▣ More or less exposure to key risk factors
- Deviations from benchmark reflect “active decisions” by the manager and is called “active risk” measured by “tracking error” (e.g., volatility of “active return” around benchmark)

# Risk – Investment Managers

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- From Indexing to High Active Risk



# Risk – Investment Managers

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## □ U.S. Large Cap Equity Manager Risk Matrix

	S&P 500 Index	Index Fund	Enhanced Index Fund	Traditional Portfolio	Concentrated Portfolio
# Portfolio Holdings	500	500	400 - 500	60-80	<30
Sector Weights		Match Index	Match Index	Index +/- 10%	May only hold 3-4 Sectors
Industry Weights		Match Index	Match Index	Flexible	May not consider
Expected Tracking Error		<1%	~1%	~2-4%	>4%

Source: Approximate ranges per IFS.

# Risk – Investment Managers

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- Investment manager “risk-adjusted” return measures
  - ▣ Information Ratio (IR)

$$\text{IR} = \frac{\text{Portfolio return} - \text{benchmark return}}{\text{Tracking Error}}$$

	Manager A	Manager B
Annualized Return	10.0%	12.0%
S&P 500 Index	8.0%	8.0%
Active Return	2.0%	4.0%
Tracking Error	2.0%	5.0%
Information Ratio	1.0	0.8

# Key Takeaways

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- Plans need to take “risk” in order to achieve investment objectives
- Asset class “risk premiums” change over time
  - ▣ Increasing focus on managing asset allocation and rebalancing decisions opportunistically
- “Equity Risk” dominates most long-term investment portfolios
- Consider economic environment when setting asset allocation and rebalancing in order to manage “risk” and achieve better diversification
- Benchmark selection for managers is very important
  - ▣ Will largely determine portfolio risk exposures for most portfolios

# DISCUSSION