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Association for Financial Professionals®

A Treasurer's Perspective of Pension Risk: Managing the Journey to Full Funding

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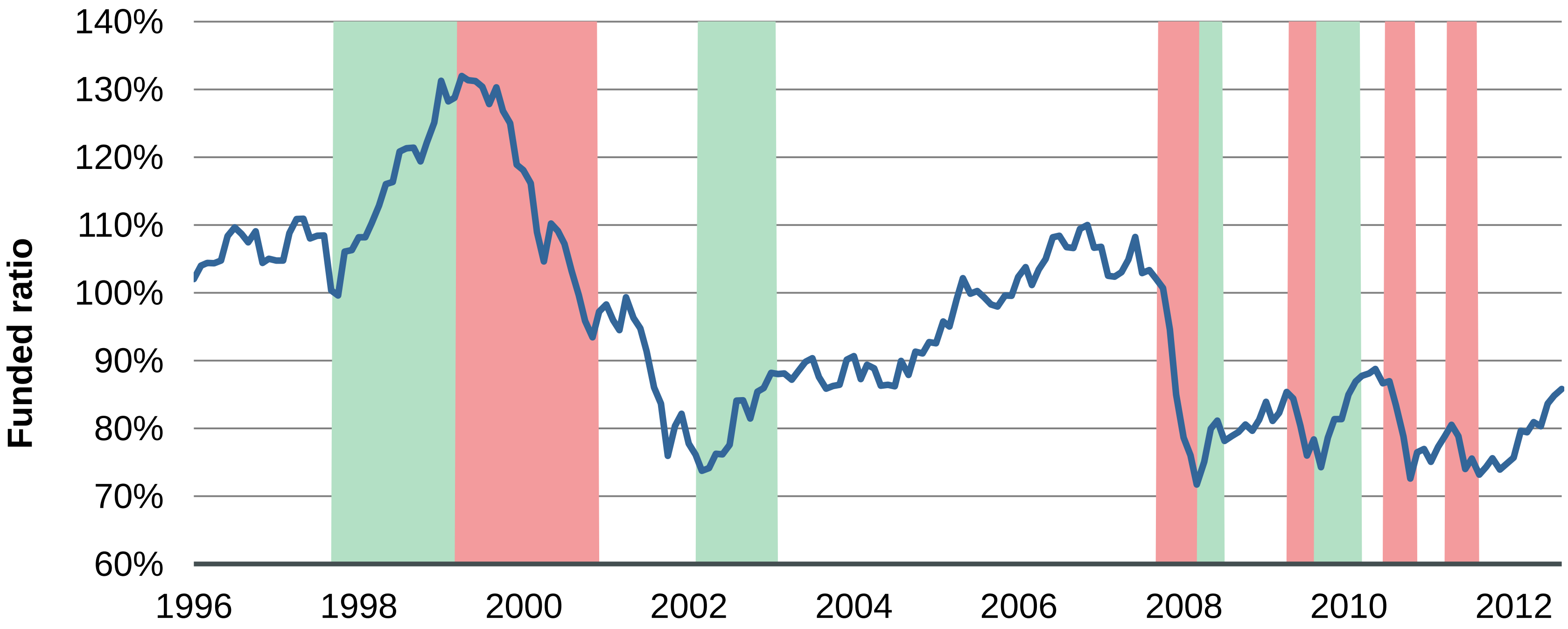
BlackRock

Funded ratios have been volatile!

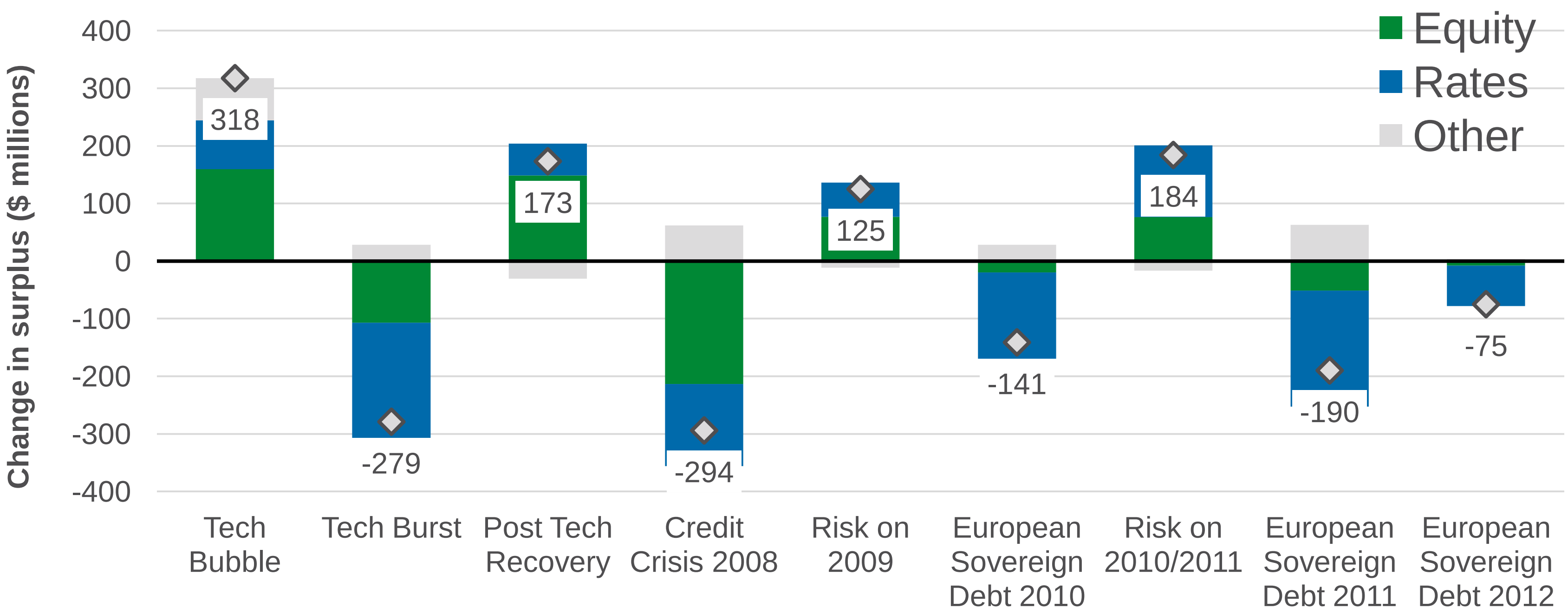
Funded ratio: Typical corporate pension plan*



*This graph does not intend to measure actual funding levels – it merely attempts to highlight changes over the period (the funding ratio is assumed to be 90% as of 12/31/2007). The assumed asset allocation is: 40% US equities, 20% International equities, 17.5% aggregate bonds, 17.5% long government/credit bonds and 5% real estate. The funded ratio is assumed to be 100% as of December 29, 2006. The liabilities are discounted using the ML AA discount curve. The graph assumes that contributions are equal to service costs and benefits.
Source: P&I, Datastream, BlackRock.

Equities and rates explain the risk

$1B pension plan – historic funded status attribution



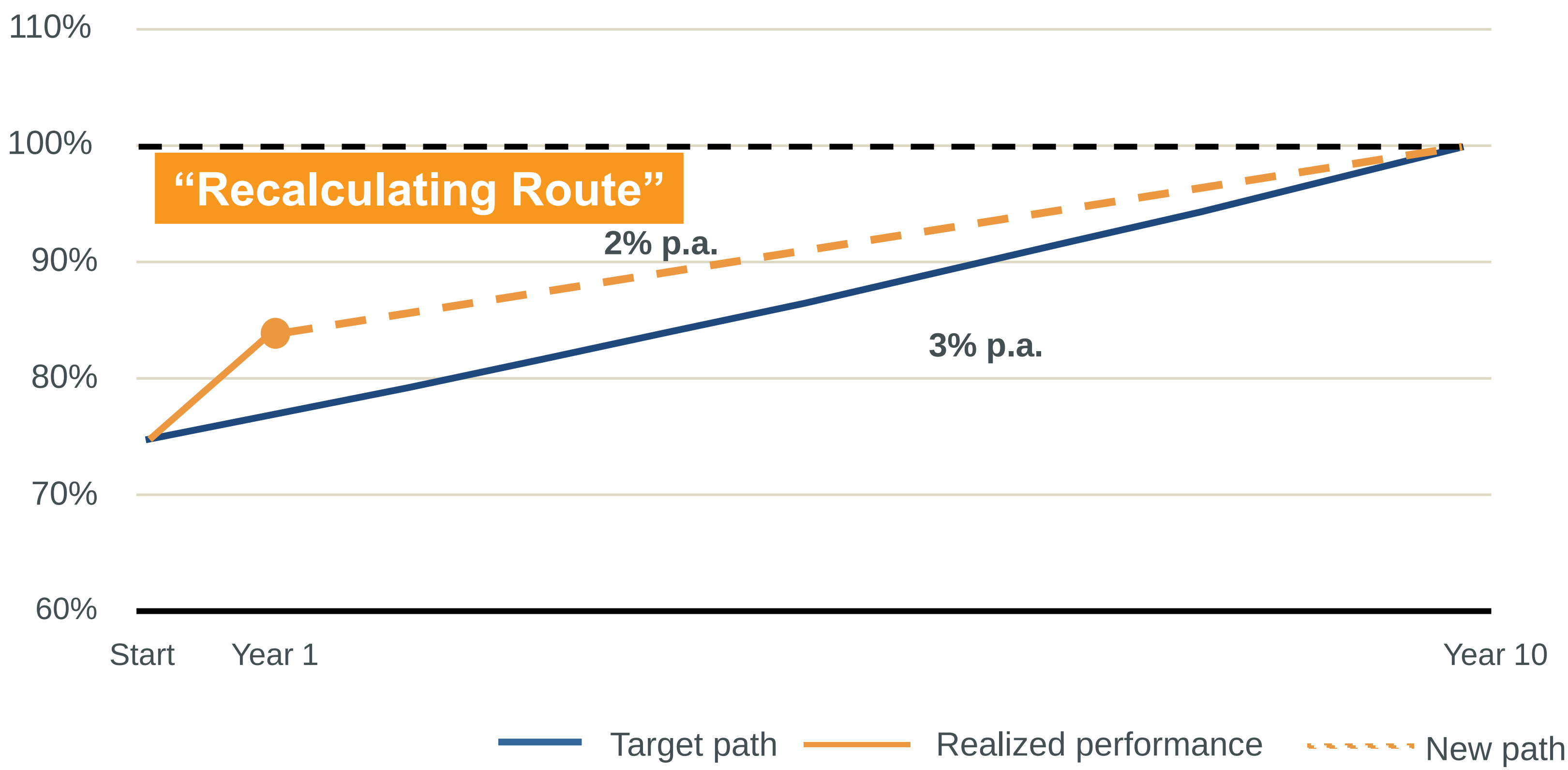
Source: BlackRock Solutions

Liability Driven Investing: Seeking the best way forward

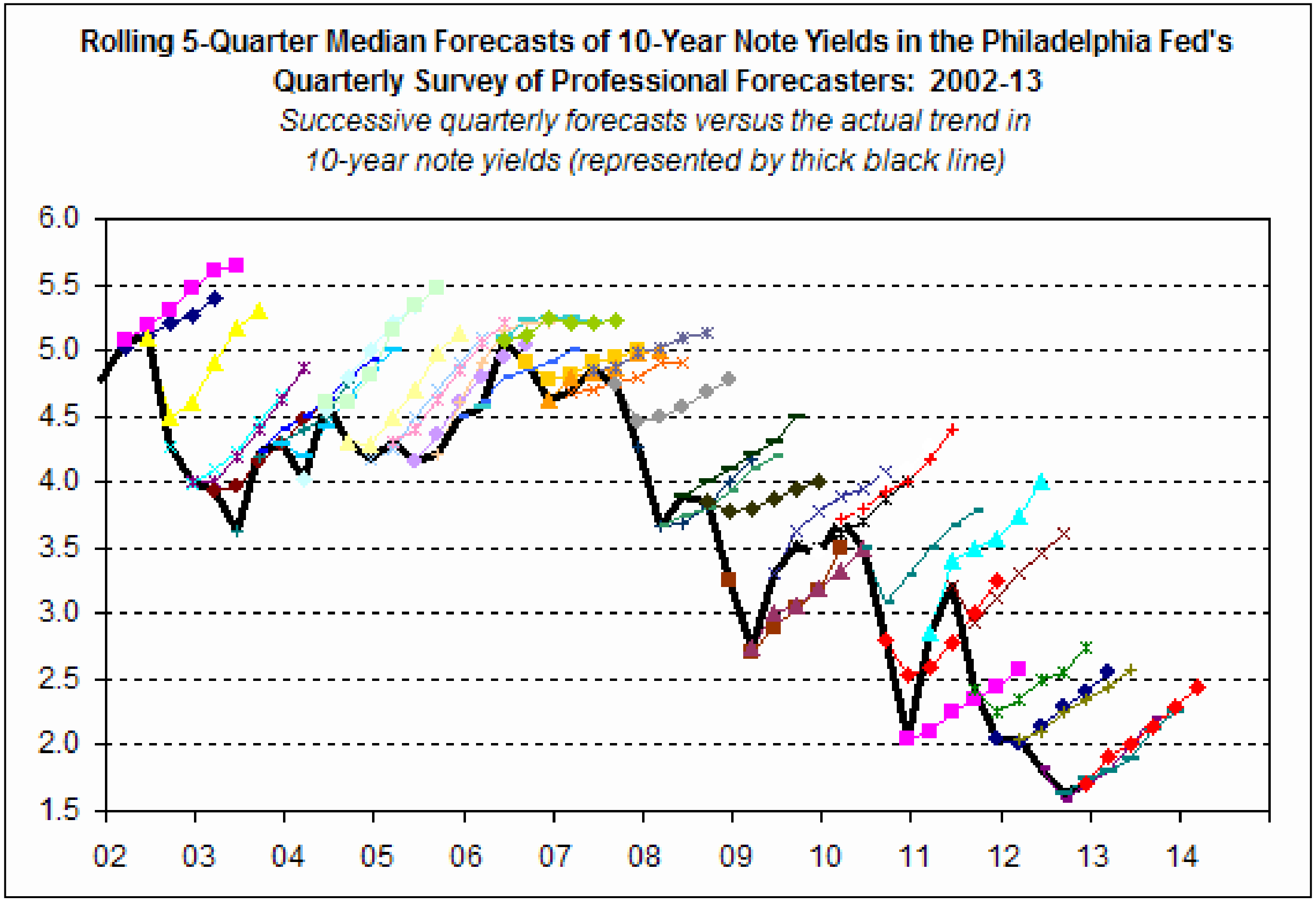
Old technology	New technology

Liability Driven Investing: How much return is needed?

Example plan to achieve full funding over 10 year period



Where to spend risk? Forecasting rates is not easy

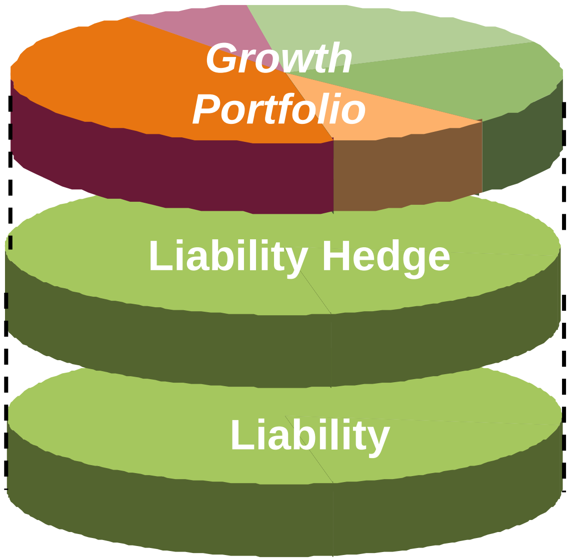


Source: Wrightson March 2013

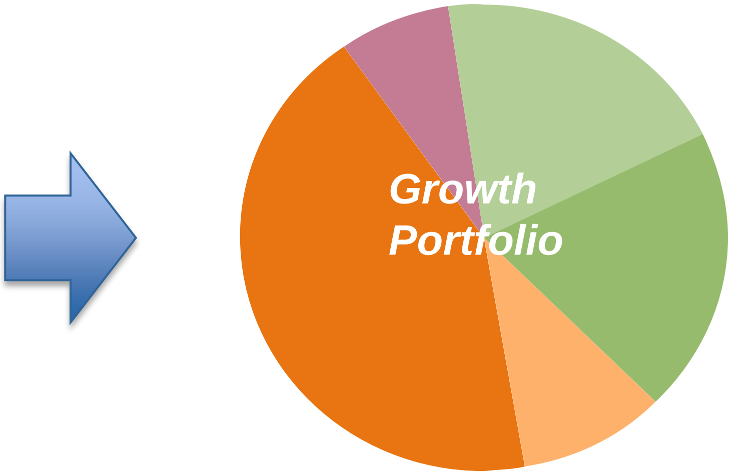
Liability Driven Investing

- **We suggest hedging liability interest rate risk and investing in a diversified portfolio of beta and alpha exposures**

All exposures

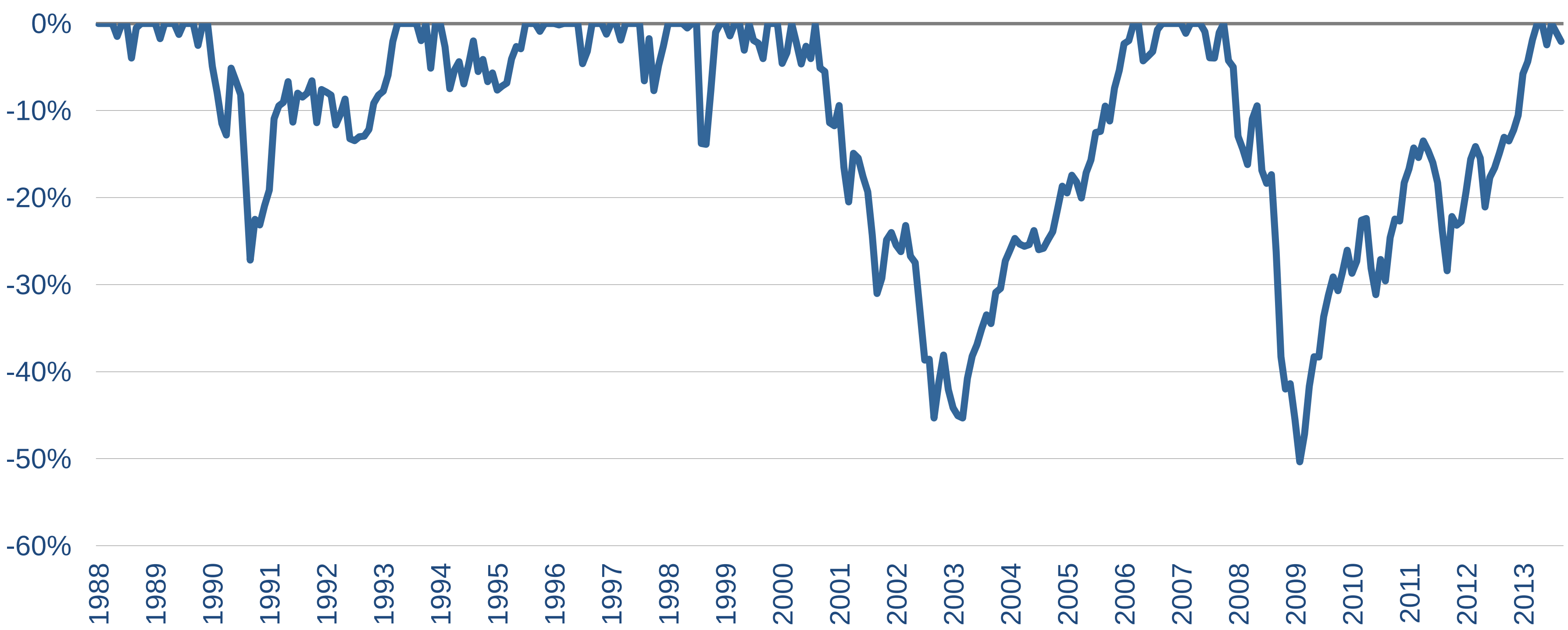


Net exposures



Equity drawdowns can be painful

Equity drawdowns



What is the alternative?

- Source: BlackRock, MSCI World Hedged (100% to USD) TR index.

Designing the growth portfolio

1. Determine risk factors that drive asset class returns
2. Build a truly diversified portfolio
3. Prepare the portfolio for extreme environments

We need a better framework for understanding risk and return

Fat
Sugar
Salt
Proteins
Vitamins

High calorie content, but unbalanced

Fat
Sugar
Salt
Proteins
Vitamins

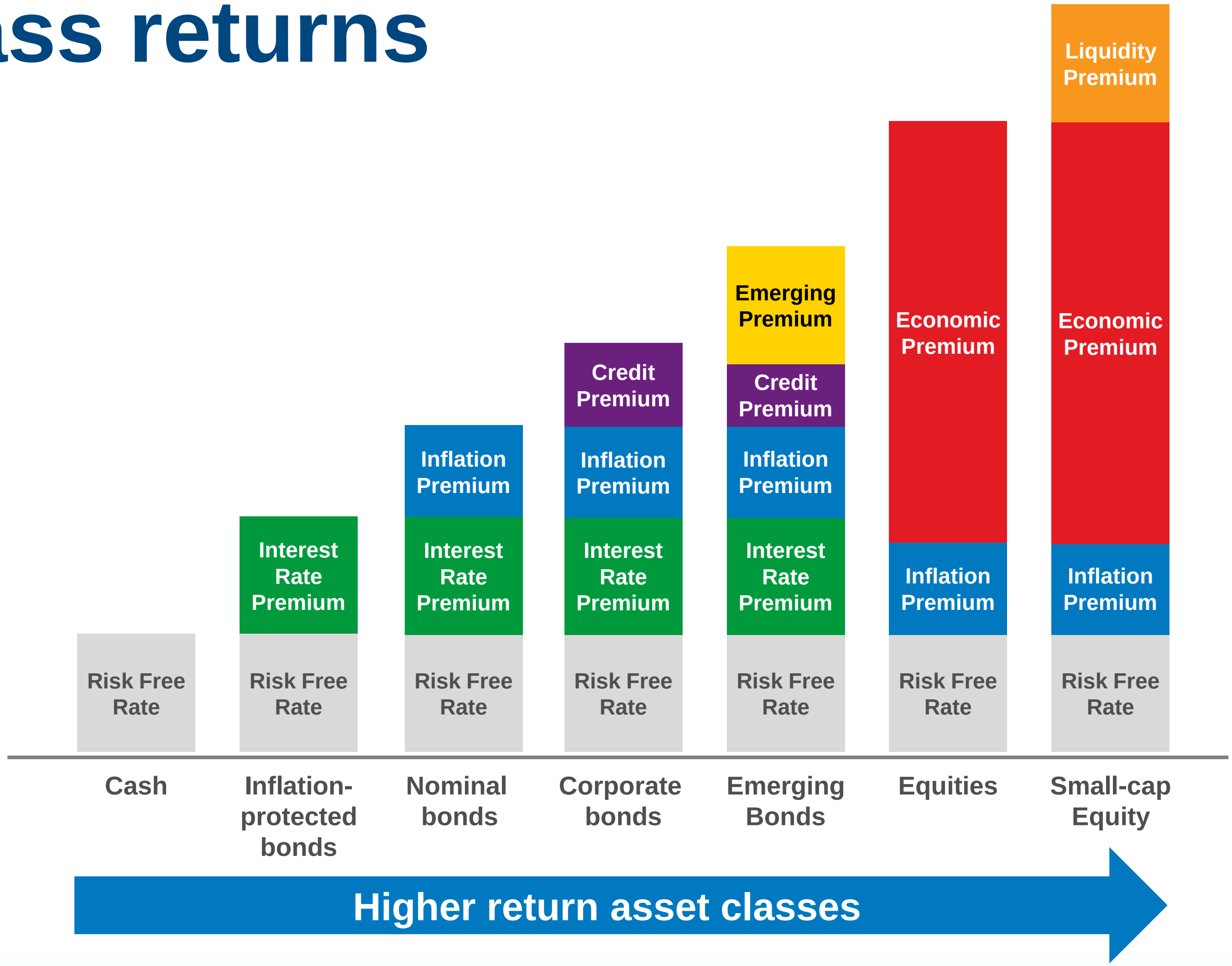
Balanced, but leaves you hungry

Fat
Sugar
Salt
Proteins
Vitamins

The solution?

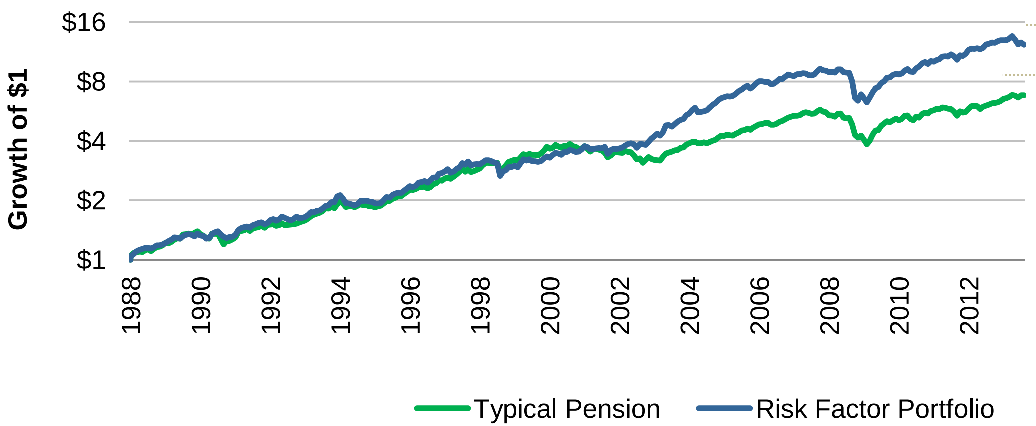
Same amount of calories as a burger
As balanced as a salad

1. Risk factors explain asset class returns

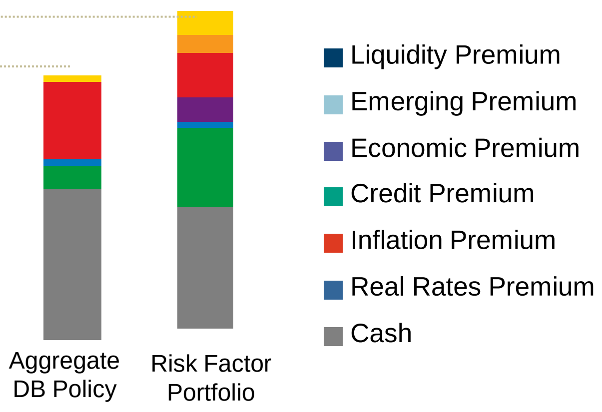


A diversified portfolio of risk factors outperforms conventional portfolios

Returns to a risk factor portfolio vs. the average DB Plan



Where do these returns come from?



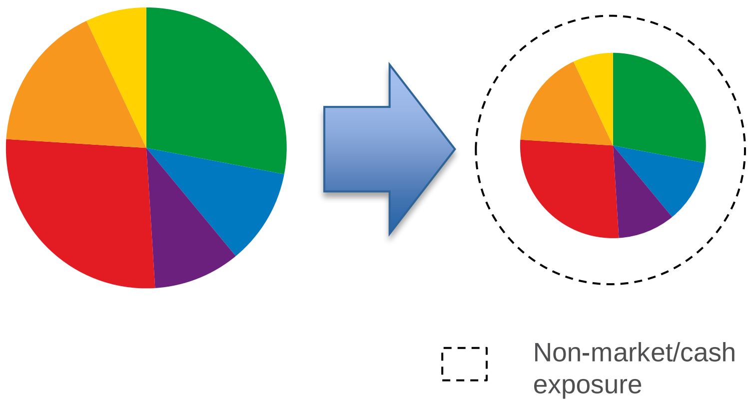
Source: Pensions & Investments, BlackRock.
Average portfolio based on aggregate asset policy of Top 200 DB Plans as of September 30, 2012 Risk Factor Portfolio consists of an allocation to 28% Real Rates, 11% Inflation, 10% Credit, 27% Economic, 17% Emerging and 7% Liquidity.

3. Manage exposures at extremes

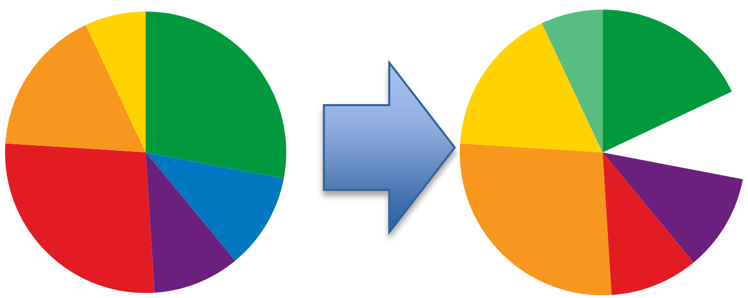
A. **When diversification fails:**
   - Reduce risk pro-rata across the whole portfolio to limit drawdowns

B. **When factors are extremely over or under valued:**
   - Increase or decrease an individual factor exposure

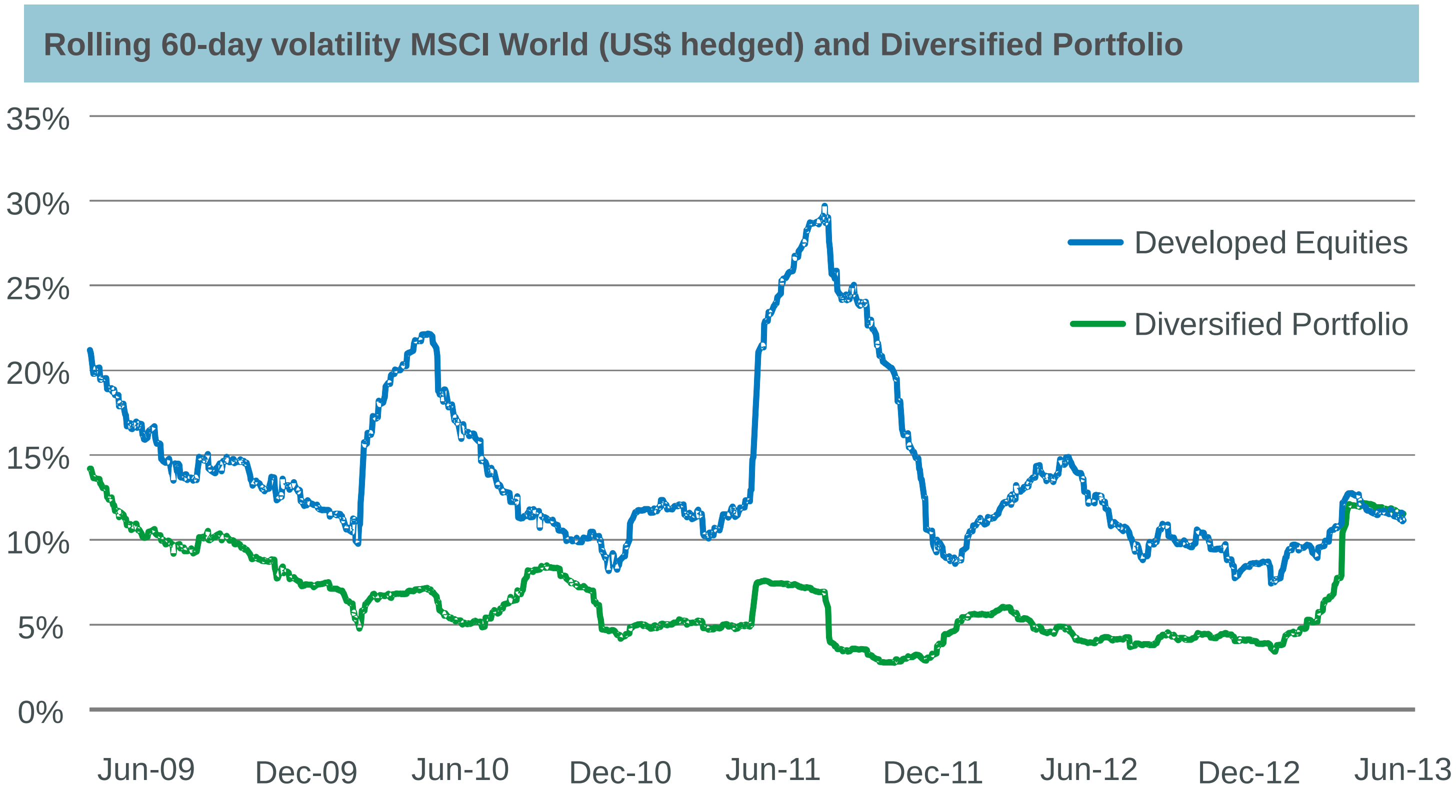
A. When diversification fails:



B. When a risk factor is at an extreme:



The diversified portfolio has had lower risk in times of market stress

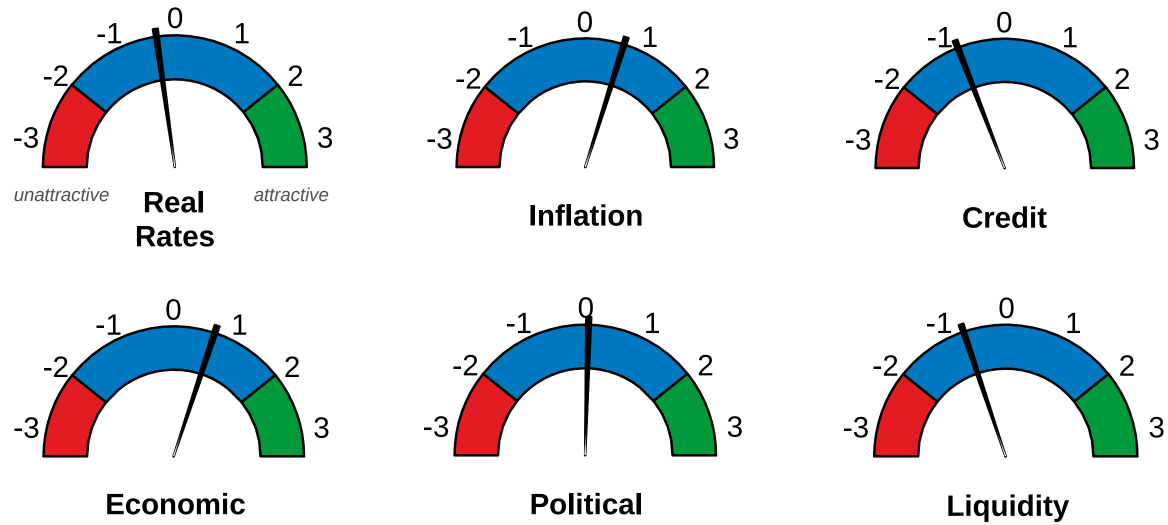


As of 30 August 2013. Source: BlackRock; Past performance is not indicative or predictive of future results

Return factor valuations

Long-term portfolio → Create a long-term efficient portfolio

Medium-term forecasts → Identify bubbles or buying opportunities

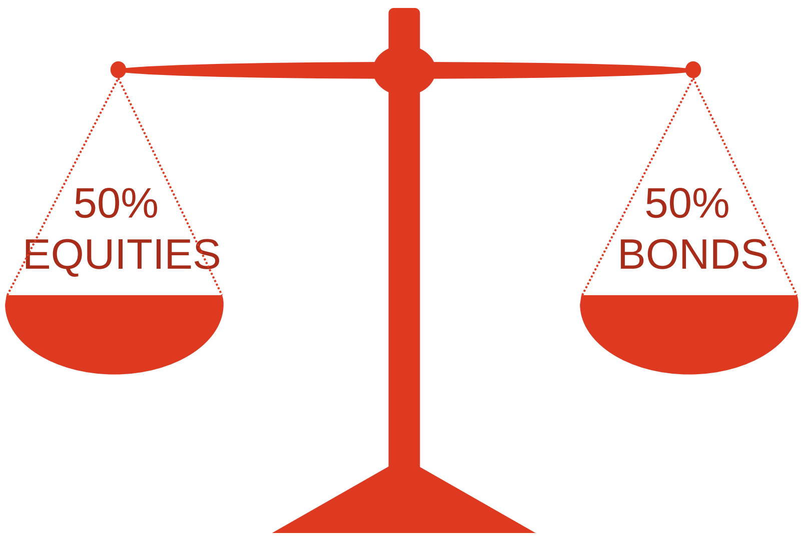


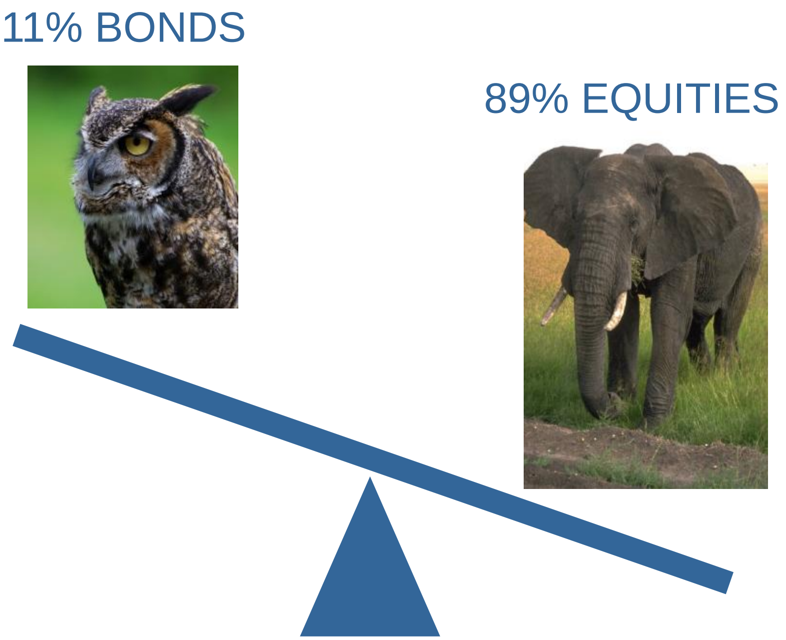
= expensive
= fairly valued
= cheap

Scale: number of standard deviations away from the long-term average
Source: BlackRock, 30 August 2013

Why allocate risk?

Capital allocation	Risk allocation





Source: BlackRock. Assumes zero correlation.

Managing the Journey to Full Funding

- **Dynamically adjust portfolio as funded ratio changes**
- **Hedge liability interest rate risk**
- **Build a truly diversified growth portfolio**