Shock Testing your Captive's Investment Portfolio

And improving your captive's investment program design and performance for the market challenges ahead

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Conventional Wisdom

- **Diversify to protect portfolio market values during volatility**
- **So what is diversification**?
  - Within a portfolio
  - With various asset classes
  - Within manager styles for an asset class
- **Classic diversification examples*:**
  - US Large Cap stocks to US Small Cap stocks = .91
  - Investment Grade bonds to Large Cap stocks = .00
  - Investment Grade bonds to Gold = .40
  - Large Cap stocks to Gold = -.03

*** JP Morgan Long Term Capital Markets projections**

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The Covid-19 Market Shock

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Lessons

- Well diversified portfolios did not provide much protection
- Well diversified asset allocation provided some but not much protection
- Black swan events are unpredictable and the markets do not behave rationally, that is, subject to typical economic factors and financial forces
- What does your investment program's performance tell you about its strengths or weaknesses?

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Assessing your Investment Manager(s) Performance

A case study

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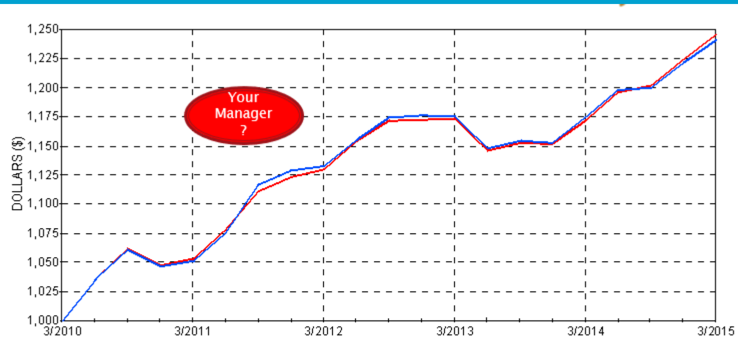
Manager Performance – Cumulative Returns



	3/2014-3/2015	3/2012-3/2015	3/2010-3/2015
Your Manager, Perhaps	1,063	1,103	1,246
Barclays Aggregate	1,057	1,096	1,241

On a Cumulative Basis, your manager edges out the benchmark

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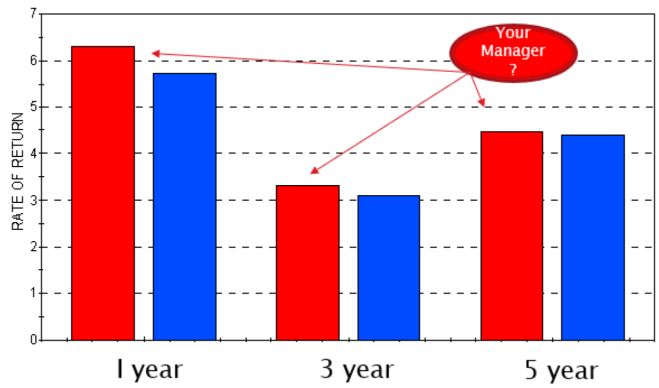
Manager Performance – Rolling Period Returns

Your manager beats the benchmark over 1, 3 and 5 year rolling time periods



	3/2014-3/2015	3/2012-3/2015	3/2010-3/2015
Your Manager, Perhaps	6.32	3.32	4.49
Barclays Aggregate	5.72	3.10	4.41

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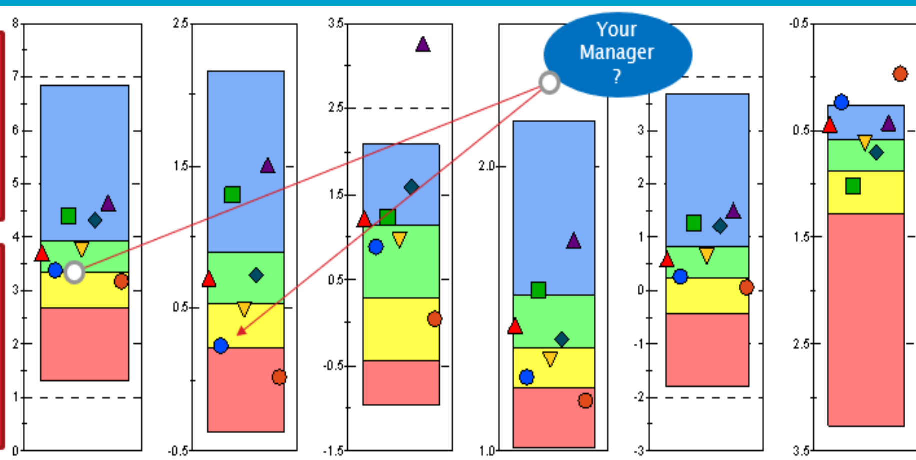
Peer Comparison – 5-year Rolling Period

All managers sampled beat the benchmark (first column)

All managers beat the current manager on a Nominal and Risk-Adjusted basis



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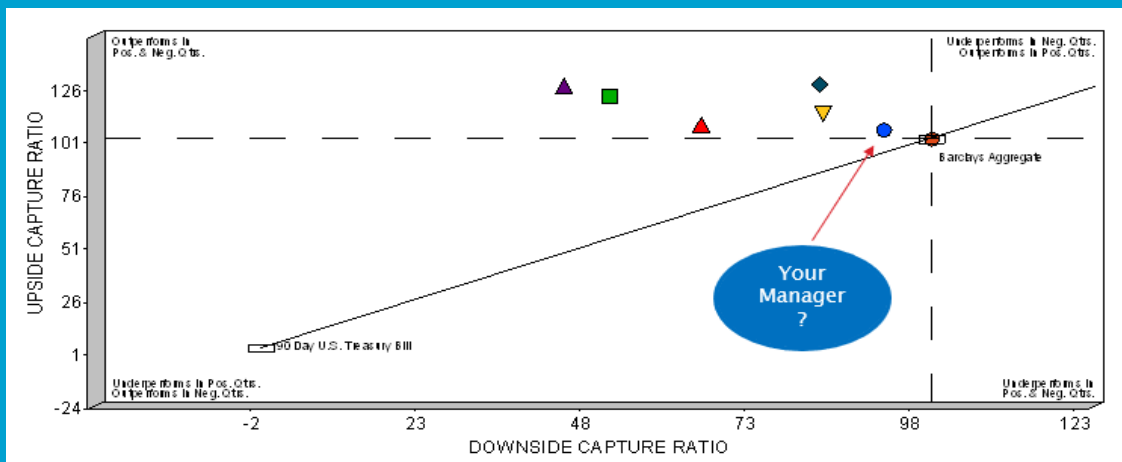
Peer Comparison & Risk-Adjusted Returns



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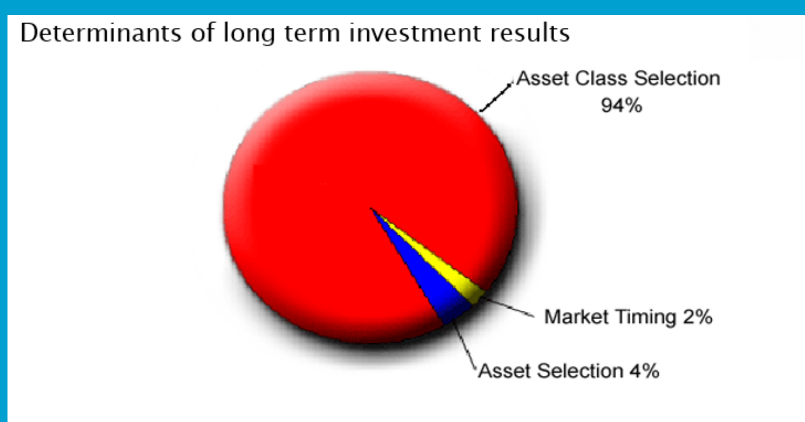
Strategic Asset Allocation



Sources: Ibbotson and Kaplan entitled "Does Asset Allocation Policy Explain 40%, 90% or 100% of Performance?" (2000).

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Your Most Important Investment Decision

- Strategic Asset allocation diversification is much more impactful than portfolio diversification
- Allocation should be optimized within your risk budget using a sound analytical system…preferably designed by actuaries that diversify low correlated asset classes
- Investment Program should be correlated with underwriting activities
- Allocation system should include <u>all asset classes</u> not just those managed by your manager!
- Low/inversely correlated asset classes will temper the effect of market swings on the portfolio's overall performance

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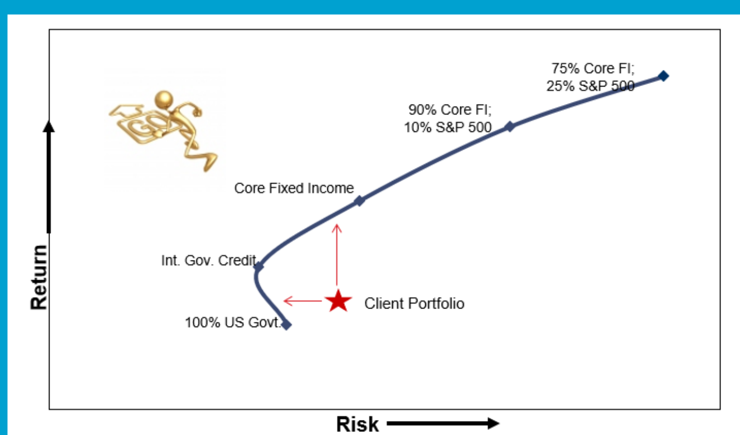
Strategic Asset Allocation Optimization



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Assessing the efficacy of your Asset Allocation

A Case Study

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Case Study: Scenarios

1. 100% investment grade bonds = Bloomberg Barclay's Aggregate index AGG)
2. 100% US large Cap Stocks = The S&P 500 Index (SPY)
3. 80/20 = 80% AGG/20% SPY
4. Diversified = 65% AGG + **15% HGY (High Yield Bonds)/ + S**PY75% + **5% XSOE (Emerging Market stocks)**
5. Aggressive Diversified = 35% AGG + 15% HGY + 35% SPY + 10% XSOE + **5% ACWI** (this could be how other institutional investors allocate)

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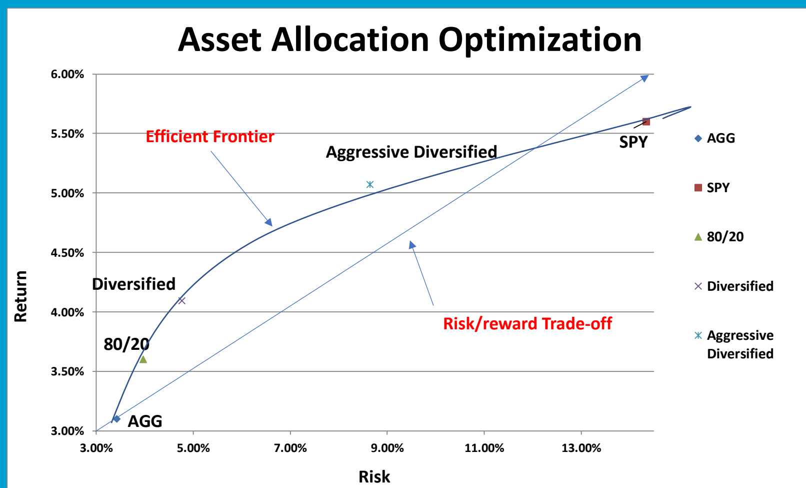
Efficient Frontier Analysis



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Projected Portfolio Data

Portfolio Comparison								
Portfolio	Mean	St.dev	Sharpe	1 Year	3 Year	5 Year	7 Year	10 Year
AGG	3.10%	3.42%	0.357	3.10%	9.59%	16.49%	23.83%	35.70%
SPY	5.60%	14.34%	0.259	5.60%	17.76%	31.32%	46.44%	72.44%
80/20	3.60%	3.96%	0.434	3.60%	11.19%	19.34%	28.09%	42.43%
Diversified	4.10%	4.77%	0.465	4.10%	12.79%	22.22%	32.44%	49.38%
Aggressive Diversified	5.07%	8.64%	0.369	5.07%	15.99%	28.05%	41.37%	63.98%

Data source: JP Morgan Long Term Capital Assumptions

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“Volatile Market” Performance Expectations

	Tail Risk Comparison				
		Standard Deviation			
Portfolio	**+2**	**+1**	**Mean**	**-1**	**-2**
AGG	**9.94%**	**6.52%**	**3.10%**	**-0.32%**	**-3.74%**
SPY	**34.28%**	**19.94%**	**5.60%**	**-8.74%**	**-23.08%**
80/20	**11.53%**	**7.56%**	**3.60%**	**-0.36%**	**-4.33%**
Diversified	**13.63%**	**8.86%**	**4.10%**	**-0.67%**	**-5.44%**
Aggressive Diversified	**22.35%**	**13.71%**	**5.07%**	**-3.57%**	**-12.21%**

Data source: JP Morgan Long Term Capital Assumptions

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Key Take-Aways

- Black Swan events adversely impact portfolios. Period. However, they can also help identify weaknesses in your investment program.
- Proper investment program design can afford significant protections for normalized market volatility, including periodic economically-driven crashes
- Diversified, low correlation asset classes are the best protection. Portfolio diversification and ALM techniques can also help at the margins.
- Properly evaluating manager performance is important to gain some degree of understanding of future performance expectations
- Optimizing your captive’s asset allocation, aligned to your liability structure and risk tolerance, will always provide the best long term performance results

THANK YOU!

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