

Evaluating Managers on an After-Tax Basis

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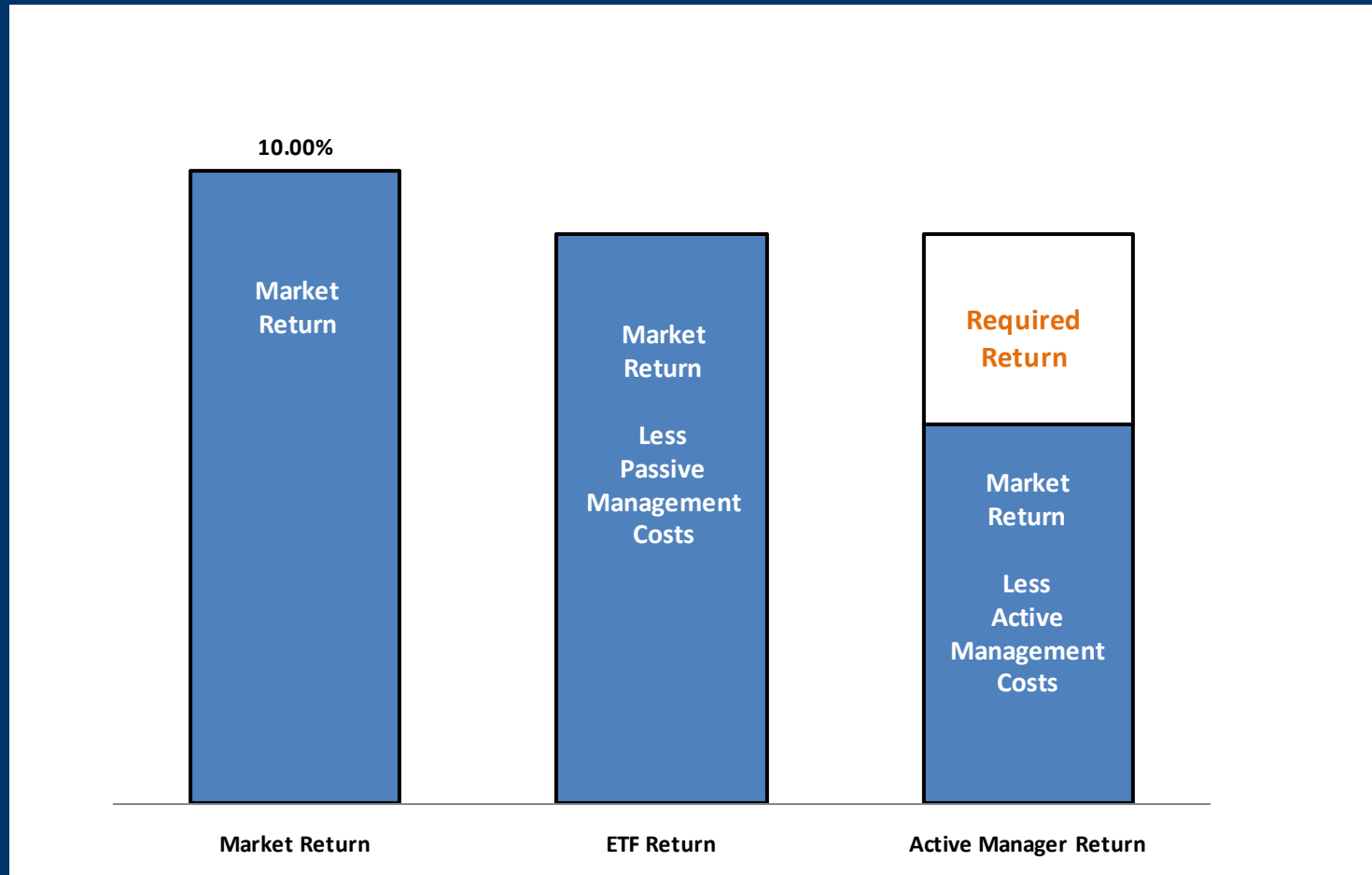
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GREYCOURT

Is Your Alpha Big Enough to Cover Its Taxes?

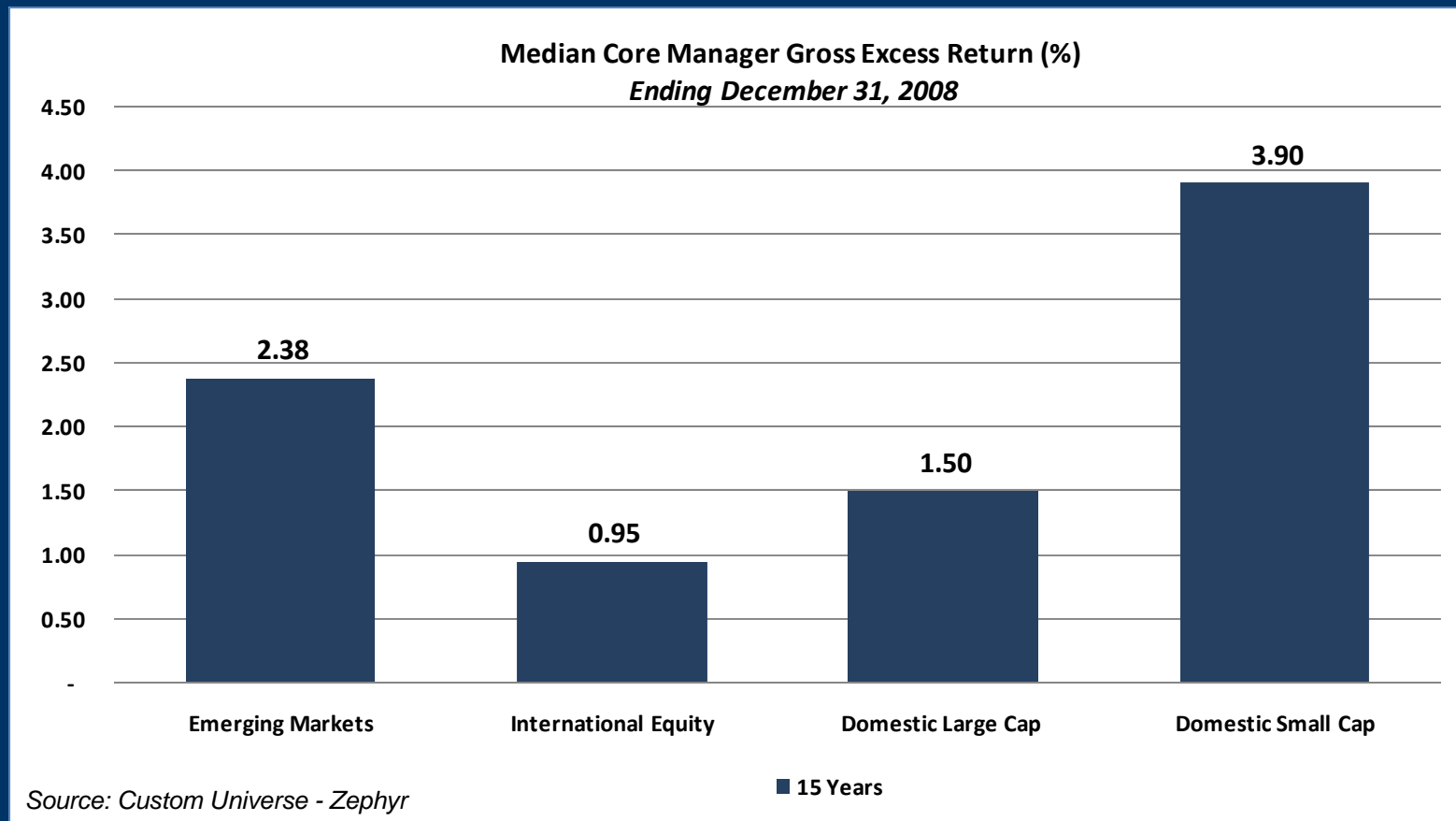
- **1993 paper by Arnott** – “Most manager’s alphas are not big enough to cover their taxes.”
 - **Arnott and Jeffrey’s paper caused a flood of analysis and discussion on tax efficient investment strategies and after-tax performance measurement.**
 - **Little attention has been given to the assessment of the “Required Excess Return” of active management.**
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Required Excess Return



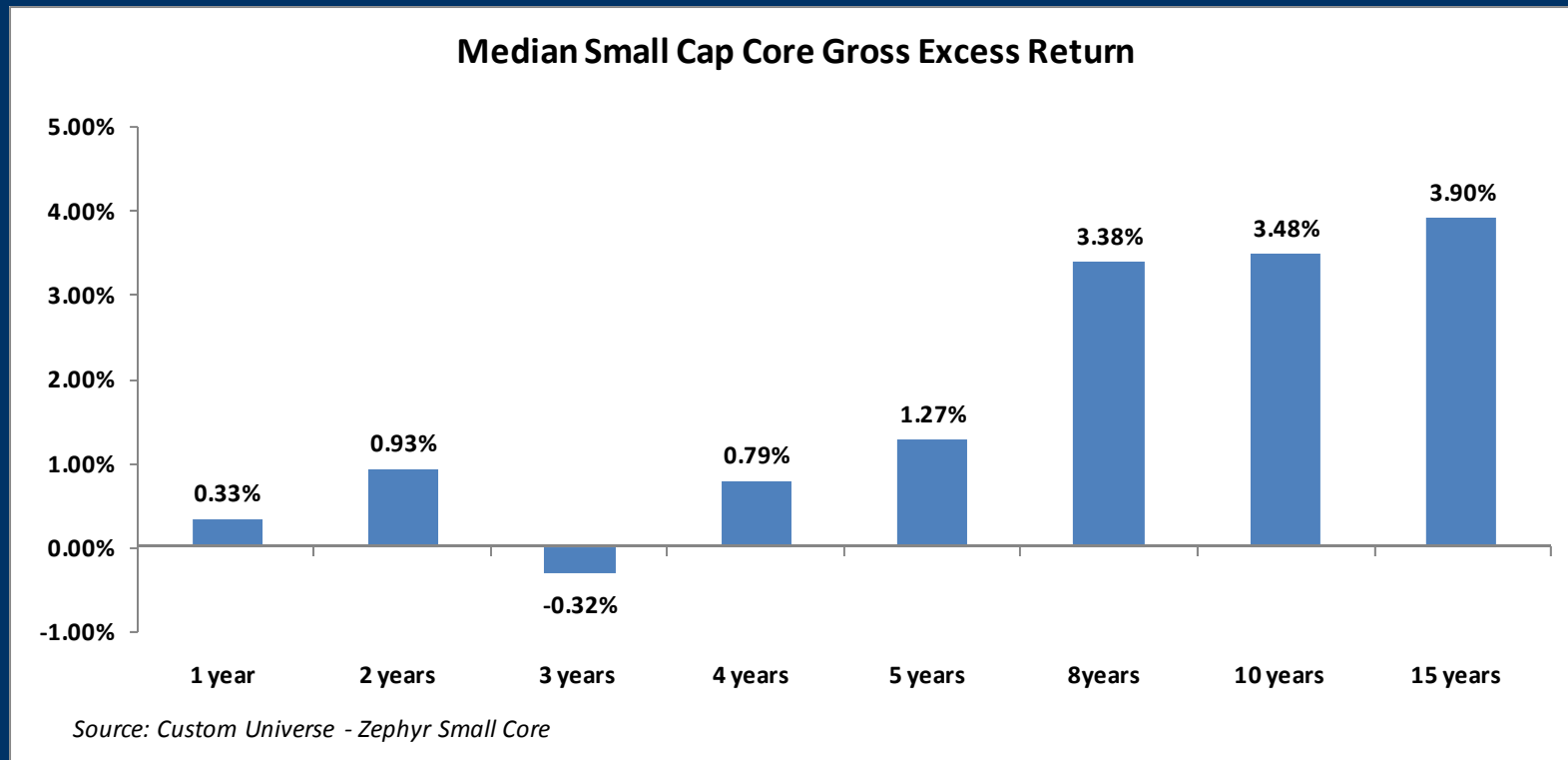
Required Excess Return: Index Fund Forecast Return – Manager Forecast Return

How Have Active Managers Done Historically?

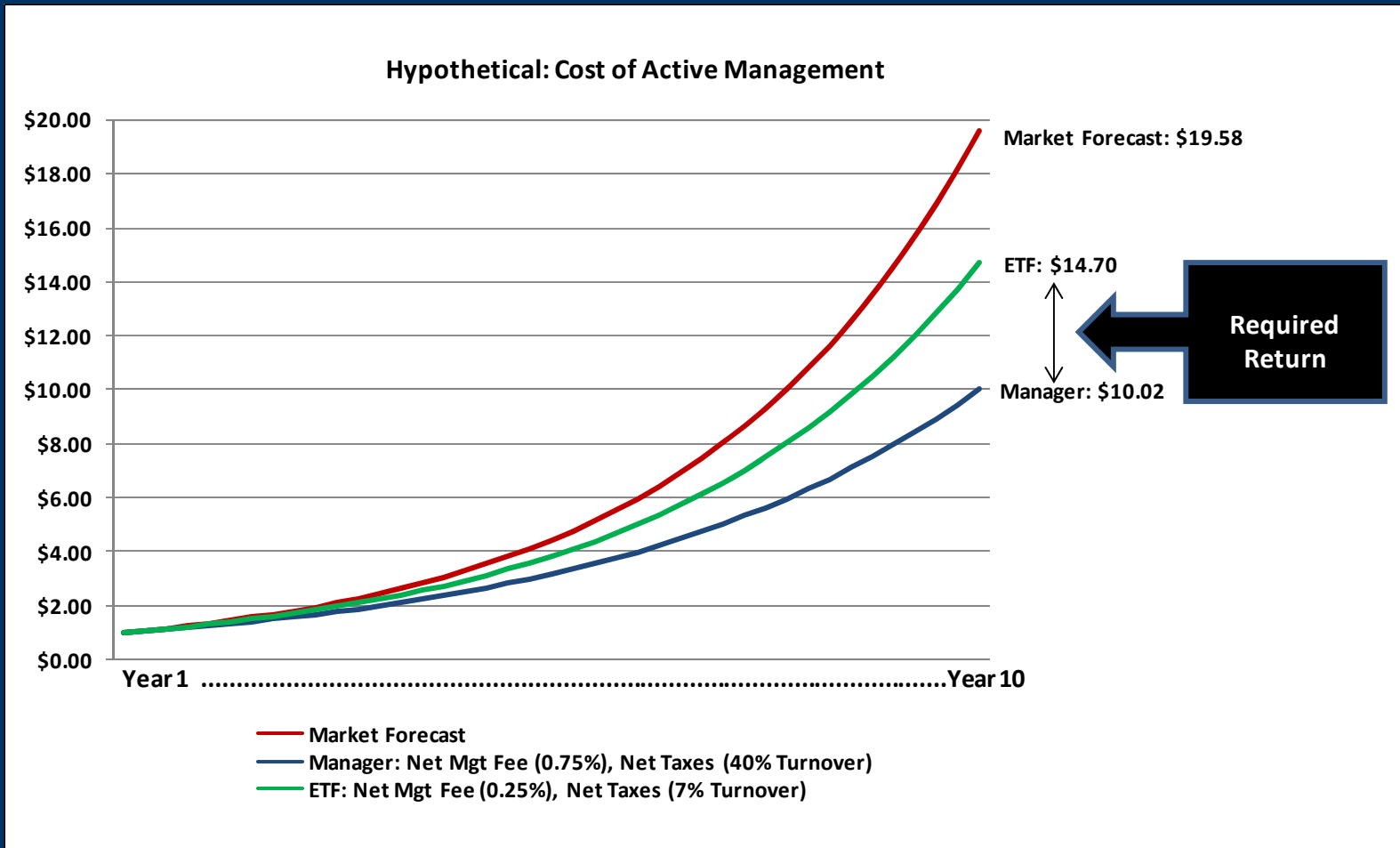


Universe Results: Survivorship Bias and Cyclicity

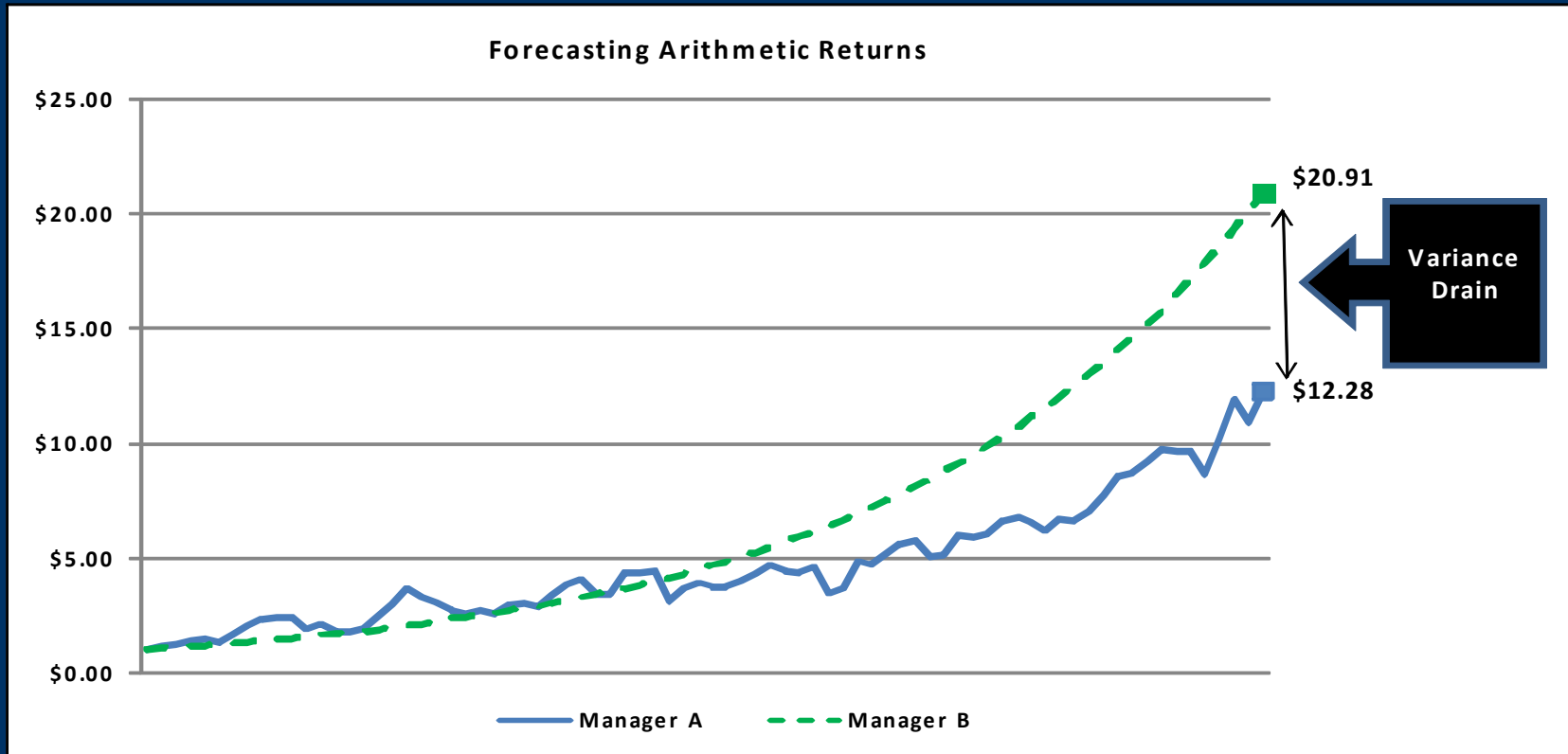
5-Year gross excess performance for median small cap core manger = 1.27%



Cost of Active Management: Management Fees and Taxes



Cost of Active Management: Variance Drain



Required Excess Return

Is your estimated excess return big enough to cover its costs versus a passive ETF?

A reasonable approach:

Step 1: Determine the Net-of-Fee After-Tax return for Index ETF.

- Management Fees.....Use *ETF fees as proxy*
- Asset Turnover.....*Generator of Capital Gains Taxes*
- Yield.....*Income Taxes*
- Volatility.....*Variance Drain*

Step 2: Calculate Required Excess Return.

Step 3: Examine Magnitude and Stability of Excess Return.

Step 1: Determine the After-Tax Return for the Index.

Key Assumptions:

✓ 10 Year Time Horizon ✓ No Liquidation ✓ Maximum Federal Tax Rates

Assumptions:	Small Cap Index Fund	Large Cap Index Fund
(1) Management Fees	0.25%	0.15%
(2) Asset Turnover	35.00%	7.00%
(3) Volatility	19.00%	16.00%
	Small Cap Index Fund	Large Cap Index Fund
Return Summary		
Projected Average Return	10.00%	9.00%
Projected Annual Compound Return	8.19%	7.72%
Loss due to Ordinary Gains Taxes	0.82%	0.18%
Loss due to Income Taxes	0.21%	0.40%
Loss due to Management Fees	0.25%	0.15%
Total Reductions	1.28%	0.73%
Net After-Tax Return	6.85%	6.95%

Step 2: Determine Required Excess Return for Manager

What is the manager's required excess return to match index fund?

Assumptions:	Example: Small Cap Manager Manager vs. Index		Example: Large Cap Manager Manager vs. Index	
	(1) Management Fees	1.00% vs. 0.25%		0.75% vs. 0.15%
(2) Asset Turnover	60% vs. 35%		40% vs. 7.0%	
(3) Volatility	20% vs. 19%		17% vs. 16%	

Return Summary	Small Cap		Large Cap	
	Manager	Benchmark	Manager	Benchmark
Projected Average Return	11.54%	10.00%	10.36%	9.00%
Projected Annual Compound Return	9.54%	8.19%	8.92%	7.72%
Loss due to Ordinary Gains Taxes	1.46%	0.82%	0.82%	0.18%
Loss due to Income Taxes	0.11%	0.21%	0.32%	0.40%
Loss due to Management Fees	1.00%	0.25%	0.75%	0.15%
Total Reductions	2.57%	1.28%	1.89%	0.73%
Net After-tax Return	6.85%	6.85%	6.95%	6.95%
Required Excess Return	1.54%		1.36%	

Greycourt's Cassandra Model: Forecasting Capital Gains



“In Greek mythology, Cassandra was the daughter of King Priam and Queen Hecuba of Troy. Her beauty caused Apollo to grant her the gift of prophecy. However, when she did not return his love, Apollo placed a curse on her so that no one would ever believe her predictions.” - *Wikipedia*

Step 3: Calculate “Coverage Ratio”

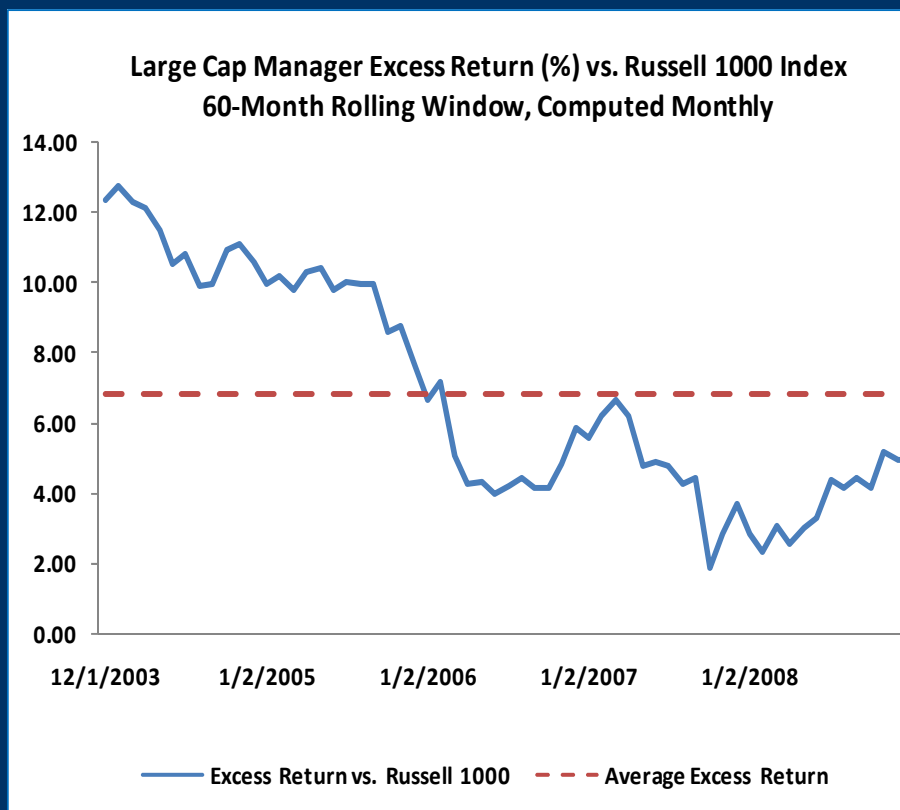
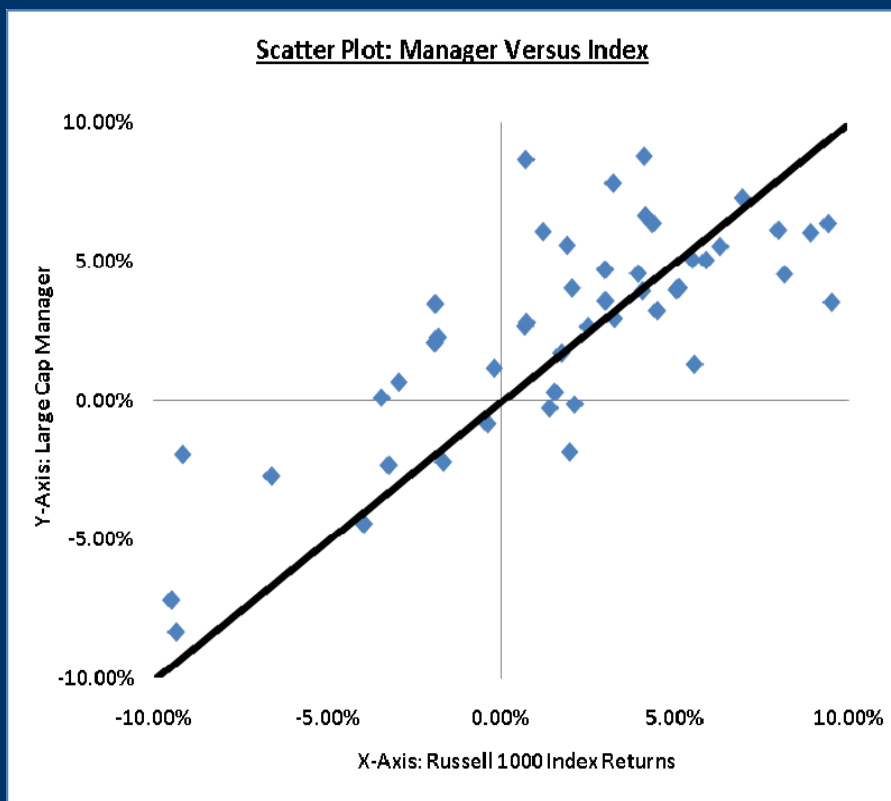
Has the manager’s historical performance covered management fees and taxes?

<u>Return Summary</u>	Small Cap		Large Cap	
	<u>Manager</u>	<u>Benchmark</u>	<u>Manager</u>	<u>Benchmark</u>
Projected Average Return	11.54%	10.00%	10.36%	9.00%
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Total Reductions	2.57%	1.28%	1.89%	0.73%
Net After-tax Return	6.85%	6.85%	6.95%	6.95%
Required Excess Return	1.54%		1.36%	
Historical Excess Return	9.10% vs. Russell 2000 Index		8.37% vs. Russell 1000 Index	
Coverage Ratio	5.91 x		6.15 x	

The Coverage Ratio: = Manager’s Observed Excess Return / Manager’s Required Return

Examine the “Coverage Ratio” – Large Cap Manager

✓ Analyze persistence and pattern of historical performance.

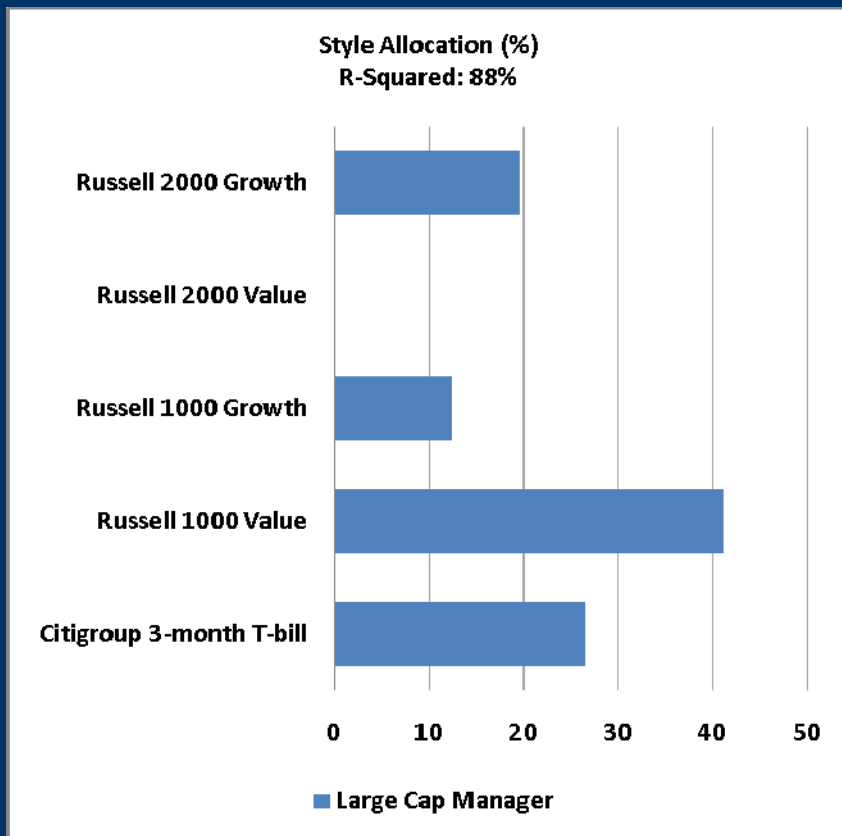


Overall persistence of excess return is low, but strong in down markets.

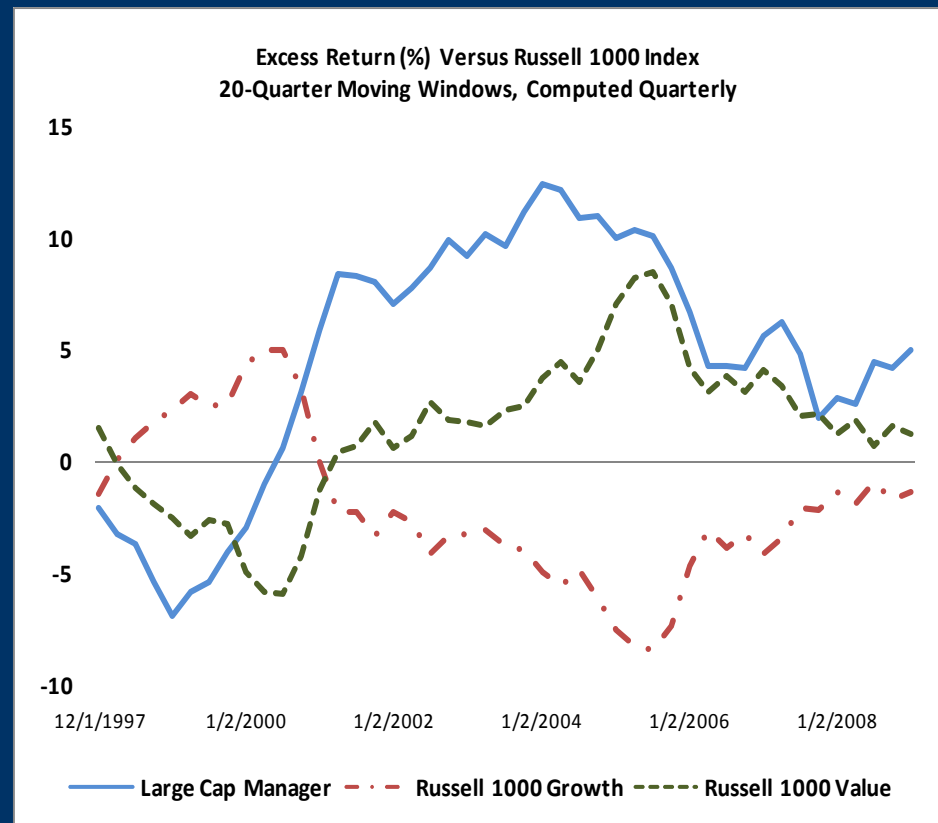
Historical excess return has decreased since 2003.

Examine the “Coverage Ratio”

✓ Analyze size and style biases



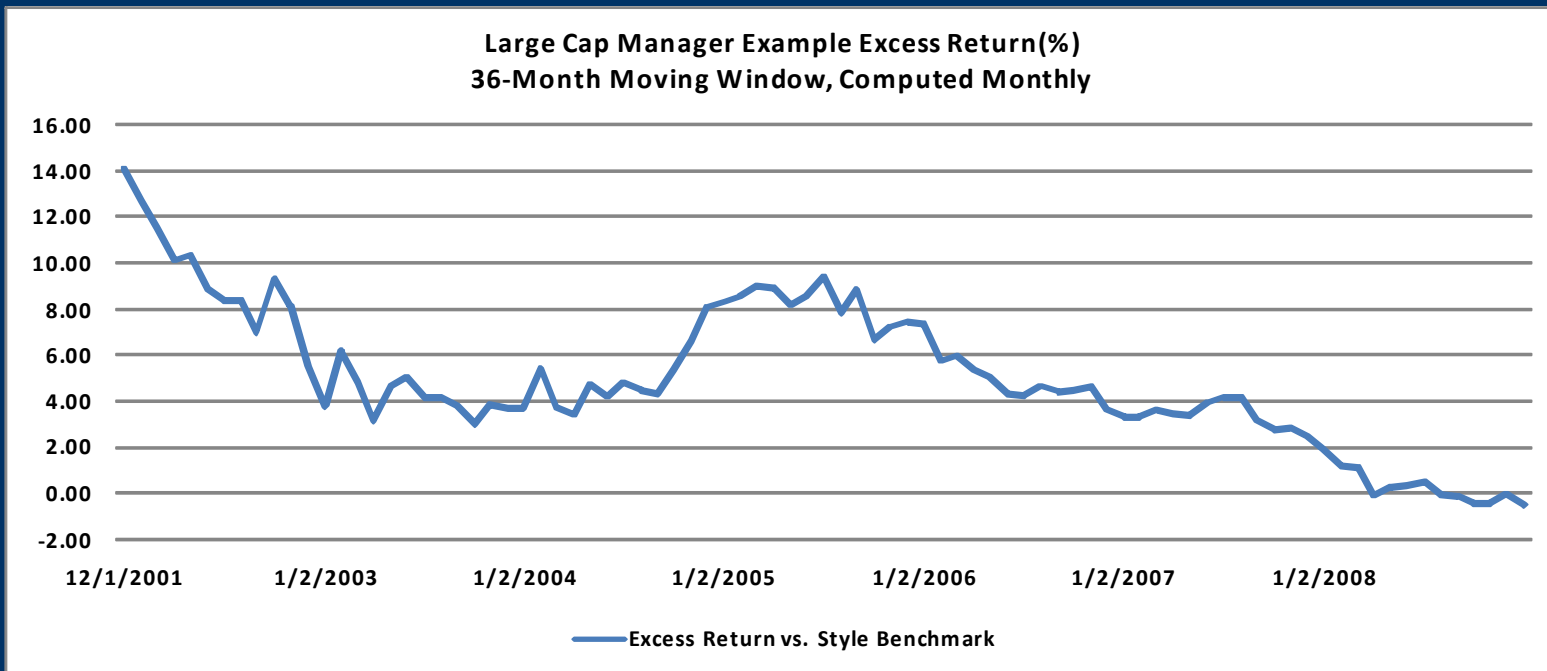
Manager has large cap value style bias



Manager's historical excess return is highly correlated to value

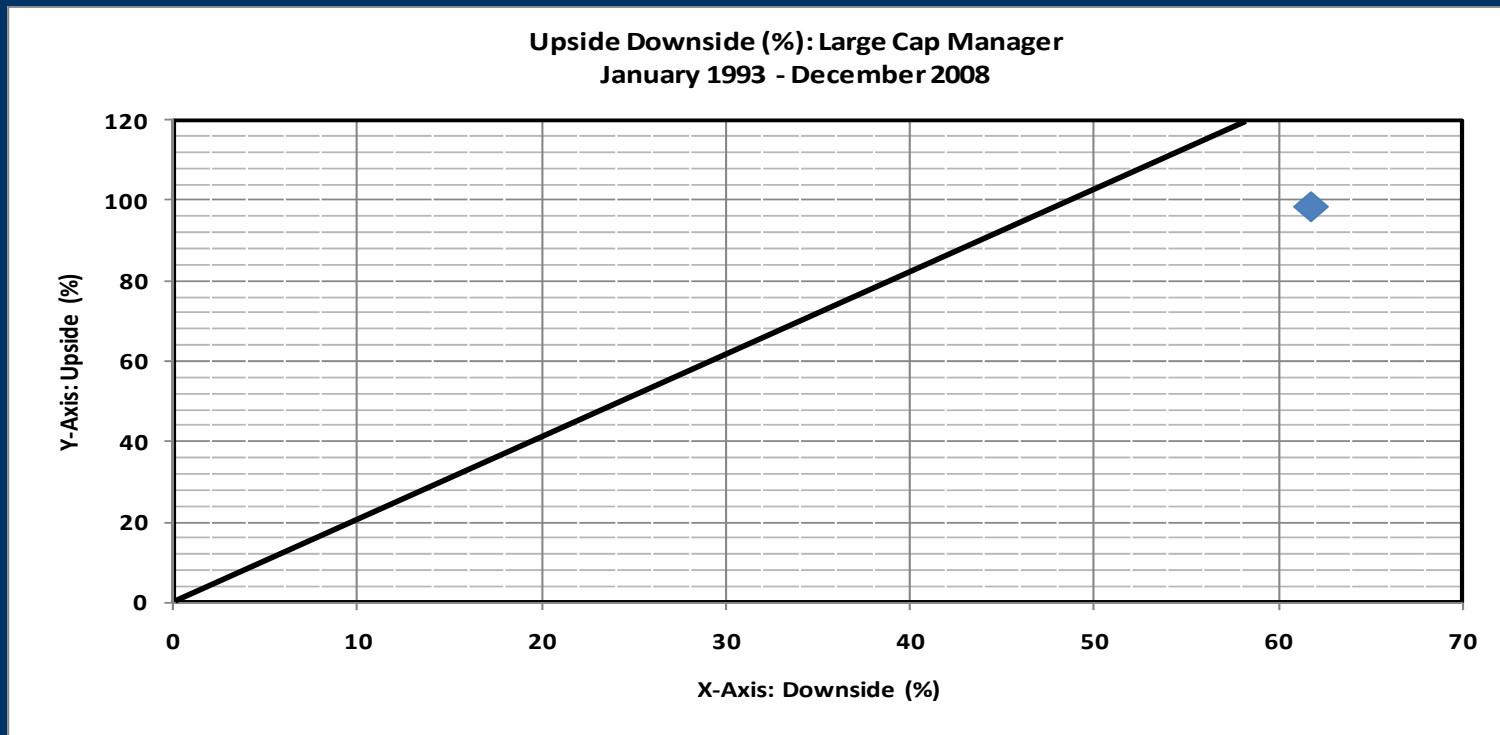
Examine the “Coverage Ratio”

✓ Analyze Style Benchmark



Examine the “Coverage Ratio”

- ✓ Up market versus down market performance



January 1993 - December 2008. Single Computation

	# of Quarters		Average Return (%)		Average Return (%) vs. Market		Market Benchmark (%)		R-Squared
	Up	Down	Up	Down	Up Market	Down Market	Up Capture	Down Capture	
Large Cap Manager	47	17	6	-5.74	6.13	-4.27	98.7	61.8	82.19
Russell 1000	44	20	6.22	-7.35	6.22	-7.35	100	100	100

Manager’s excess return was generated in down markets.

Adjust the “Coverage Ratio”

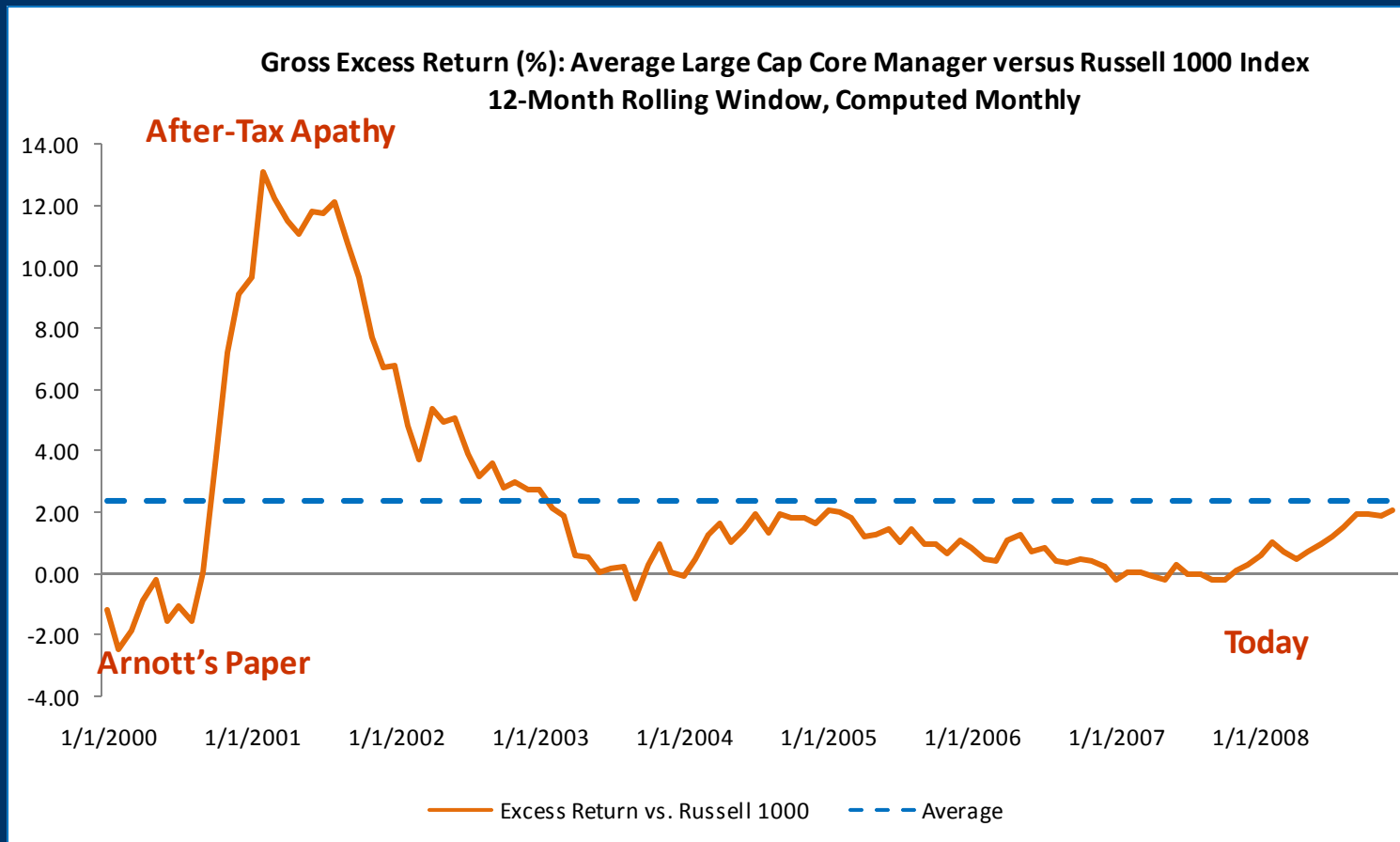
Adjust expected excess return given following:

Scenario	Adjustment
Positive return environment	Downward given manager’s upside capture
Growth outperforms value	Downward given manager’s value bias
Large cap outperforms small cap stocks	Upward given manager’s size bias



Adjust manager’s expected excess return *downward* and recalculate Coverage Ratio

Weighing the Cost of Active Management



References:

Is Your Alpha Big Enough to Cover Its Taxes?

Robert D. Arnott

THE JOURNAL OF PORTFOLIO MANAGEMENT
SPRING 1993

Disclaimers:

The statistical information presented in this report has been obtained from independent sources as noted. While Greycourt believes these sources to be reliable, Greycourt has not independently verified this information. Past performance does not guarantee future results.

Greycourt maintains a proprietary LTACF which it updates periodically. This document explains in detail Greycourt's view of potential returns by asset class for use in one-on-one presentations only and is available on that basis upon request. Greycourt's LTACF model does not include the deduction of advisory fees or other expenses that a client may have to pay. It does assume the reinvestment of interest and dividends. As with all models, there are inherent limitations to the model particularly the fact that results may not reflect the impact that material economic or market factors may have on actual advisor decision making.

Custom Universe Disclosure

Purpose: The "custom universe" is designed by Greycourt and uses publicly-available information to compare a group of managers with similar investment styles ("peer groups"). Peer groups are constructed to provide an objective comparison of a specific, client manager's performance against other managers that invest in a similar style. Peer groups are not intended to be used as a "buy" list and will include some managers that would not be recommended by Greycourt to its clients. **Methodology:** A peer group is constructed by first identifying a particular market benchmark. For example, a peer group for core, domestic equity managers is generally benchmarked to the S&P 500 Index. Greycourt screens a large number of managers to determine those managers that have investment characteristics similar to those of the benchmark. Characteristics include R-squared, growth/value orientation, capitalization and product description. Returns are not considered in the screening process so good and poor performing managers are included in the peer groups.

Whenever possible, Greycourt used published, widely used manager databases to provide the most diverse group of managers possible. Plan Sponsor Network (separate accounts) and Morningstar (mutual funds) are currently used. Plan Sponsor Network returns are presented gross of fees while Morningstar is net of fees. Peer groups for hedge fund of fund managers are constructed by specific identification of managers that invest in a similar manner. Greycourt has not identified a reliable public database for this group of managers.

Disclaimers

Russell 1000® Index measures the performance of the 1,000 largest companies in the Russell 3000 Index, which represents approximately 92% of the total market capitalization of the Russell 3000 Index. As of the latest reconstitution, the average market capitalization was approximately \$13.0 billion; the median market capitalization was approximately \$4.6 billion. The smallest company in the index had an approximate market capitalization of \$1.8 billion.

Russell 2000® Index measures the performance of the 2,000 smallest companies in the Russell 3000 Index, which represents approximately 8% of the total market capitalization of the Russell 3000 Index. As of the latest reconstitution, the average market capitalization was approximately \$664.9 million; the median market capitalization was approximately \$539.5 million. The largest company in the index had an approximate market capitalization of \$1.8 billion.

The MSCI EAFE Index (Europe, Australasia, Far East)

The MSCI EAFE Index (Europe, Australasia, Far East) is a free float-adjusted market capitalization index that is designed to measure developed market equity performance, excluding the US & Canada. As of April 2002 the MSCI EAFE Index consisted of the following 21 developed market country indices: Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland and the United Kingdom.

The MSCI EM (Emerging Markets) Europe, Middle East and Africa Index

The MSCI EM (Emerging Markets) Europe, Middle East and Africa Index is a free float-adjusted market capitalization index that is designed to measure equity market performance in the emerging market countries of Europe, the Middle East & Africa. As of August 2002, the MSCI EM EMEA Index consisted of the following 10 emerging market country indices: Czech Republic, Hungary, Poland, Russia, Turkey, Israel, Jordan, Egypt, Morocco and South Africa.

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