



Absolute Volatility Strategies



Why should investors desire an absolute volatility portfolio?

- Financial theory suggests that investors should strive to be on the efficient frontier in order to generate a high Sharpe Ratio. Yet capitalization-weighted indexes are inefficient in their construction and are most likely not on the efficient frontier.
- If investors attempt to “match” the market, they are bearing “uncompensated risk.” There are alternative portfolios with lower volatility and the same expected return as the cap-weighted indexes.
- Absolute volatility strategies offer a better risk-return tradeoff and therefore a higher Sharpe Ratio.

Investors should be interested in absolute volatility equity strategies if they want an equity allocation that can dramatically reduce their overall risk while potentially allowing them to achieve long-term market-like returns.

Why should Absolute Volatility Strategies work?

- Capitalization-weighted indexes are most likely inefficient.
 - Weightings determined solely by market cap.
 - Inefficient diversification due to no consideration of volatilities and correlations.
- CAPM suggests that the index is efficient and therefore can only be beaten by taking on more absolute risk
- INTECH has long noted the assumptions underlying CAPM to be normative in nature and not descriptive of real markets.
- Consequently, it should be possible to build a portfolio which:
 - Beats the index with volatility that matches that of the index, or
 - Matches the index return with lower volatility than the index, or
 - Beats the index with lower volatility than the index.

Is there a low volatility “alpha source”?

- Claim: low-volatility stocks have higher returns.
 - Even if the premise holds, portfolio variance depends on stock correlations as well as volatilities; a portfolio of only low-volatility stocks does not guarantee a low-volatility portfolio.
- Claim: low-volatility portfolios have historically outperformed cap-weighted indexes.
 - Even if this were true, there are several possible explanations, among them:
 - Time-period bias (recent crises created a favorable environment, which may or may not continue; alpha advantage could disappear)
 - Behavioral biases of investors (bias towards active-risk strategies; bias towards “glamour” stocks)
 - Style-biased portfolio
- Claim: reducing volatility increases returns due to lower “volatility drag.”
 - “Volatility drag” is the difference between arithmetic and geometric returns. Simply lowering volatility will not necessarily generate higher returns. INTECH has long noted the importance of geometric vs. arithmetic returns. Geometric return is the correct way to measure long-term return.

INTECH does not rely on any behavioral anomalies in constructing its absolute volatility portfolios.

Why INTECH for Absolute Volatility Strategies?

- We have the experience and long track record in managing portfolios based on estimates of volatility.
- The process can be readily adapted to deal with either absolute or relative volatility.
- INTECH is unique – our proprietary estimates of stocks' variances and co-variances result in a portfolio that will be different in its composition than other quant managers; we will not necessarily be chasing the same stocks.
- The process is flexible: INTECH has engineered two different approaches to address demand for absolute-volatility strategies.
 - **Low Volatility:** This strategy targets net-of-fee returns that are market-like, but with significantly lower standard deviation than the index and a higher Sharpe Ratio.
 - **Managed Volatility:** This strategy targets long-term returns of 3-4% (annualized, gross of fees) in excess of the market, with lower standard deviation than the index and a significantly higher Sharpe Ratio.

Our 24-year history is steeped in the study of volatility.

This page is intentionally left blank.

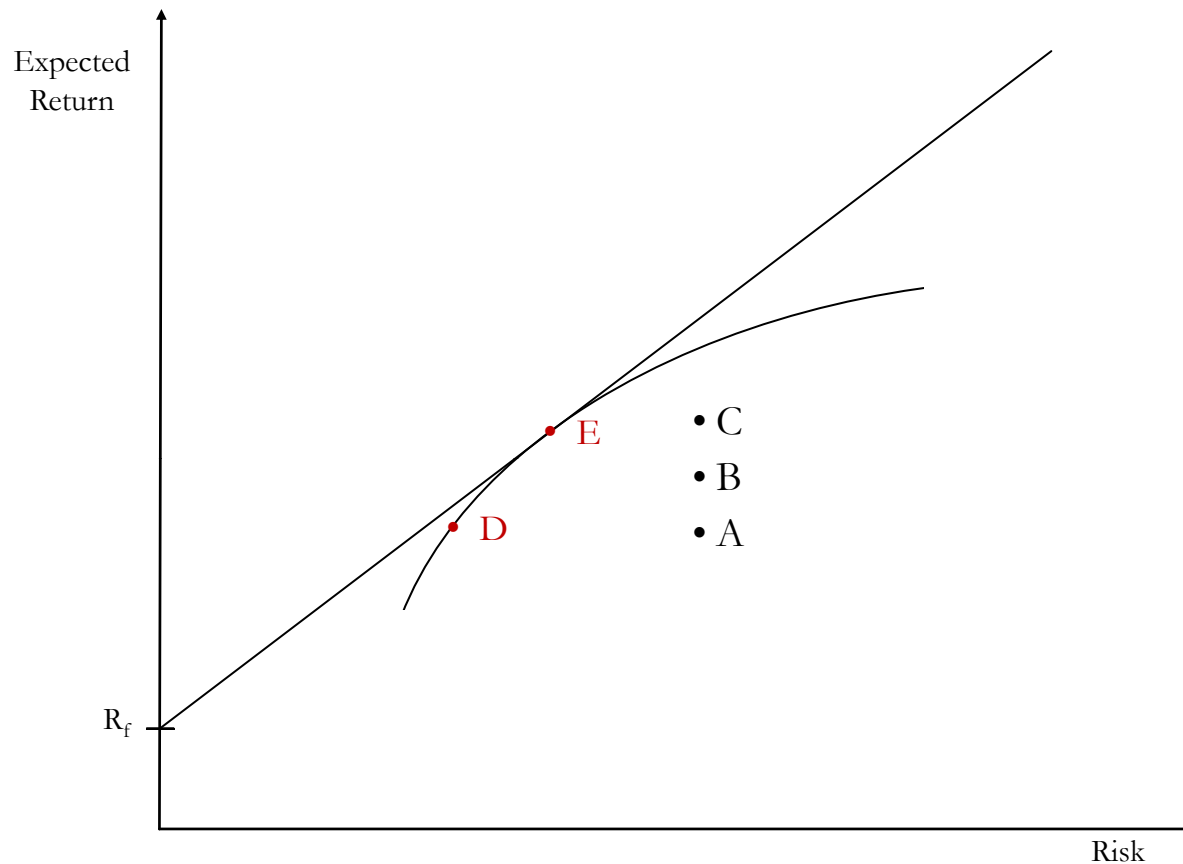
**Absolute Volatility Strategies:
INTECH's Approach**

INTECH's Traditional Products: Information Ratio-Based

- Cap-weighted indexes are unlikely to be mean-variance efficient.
- This creates the opportunity for skilled active managers to outperform those benchmarks over time at similar levels of absolute risk.
- INTECH's traditional products have focused on maximizing the information ratio (IR), a common measure of risk-adjusted returns, which focuses on relative return and tracking error.
- The information ratio is used as a measure of an investment manager's skill and consistency.
- Managers who are able to generate high IRs over time outperform the market over the long term.
- INTECH's expertise is in estimating volatilities and correlations and using those estimates to generate alpha for its clients through volatility-capture strategies. INTECH has a long-term track record dating back to 1987.

- The Sharpe Ratio is a common measure of risk-adjusted returns, which focuses on a portfolio's absolute return and absolute volatility.*
- In general, a higher Sharpe Ratio is considered to indicate a more-efficient investment in terms of risk-return tradeoff.
- Absolute volatility portfolios tend to have higher Sharpe Ratios than cap-weighted indexes.
- INTECH's absolute volatility strategies focus on reducing the absolute volatility of the portfolio and/or generating higher Sharpe Ratios than cap-weighted indexes.

*Sharpe ("The Sharpe Ratio", Journal of Portfolio Management, 1994) defines the ex-post Sharpe Ratio as $\frac{\overline{D}}{\sigma_D}$ where $D_t = R_{Pt} - R_{Bt}$. R_{Pt} and R_{Bt} represent portfolio and benchmark (e.g. risk-free rate) periodic returns, respectively.



A – Cap-weighted index (e.g., Russell 1000)

B – INTECH conservative active portfolio (e.g., Broad Enhanced Index)

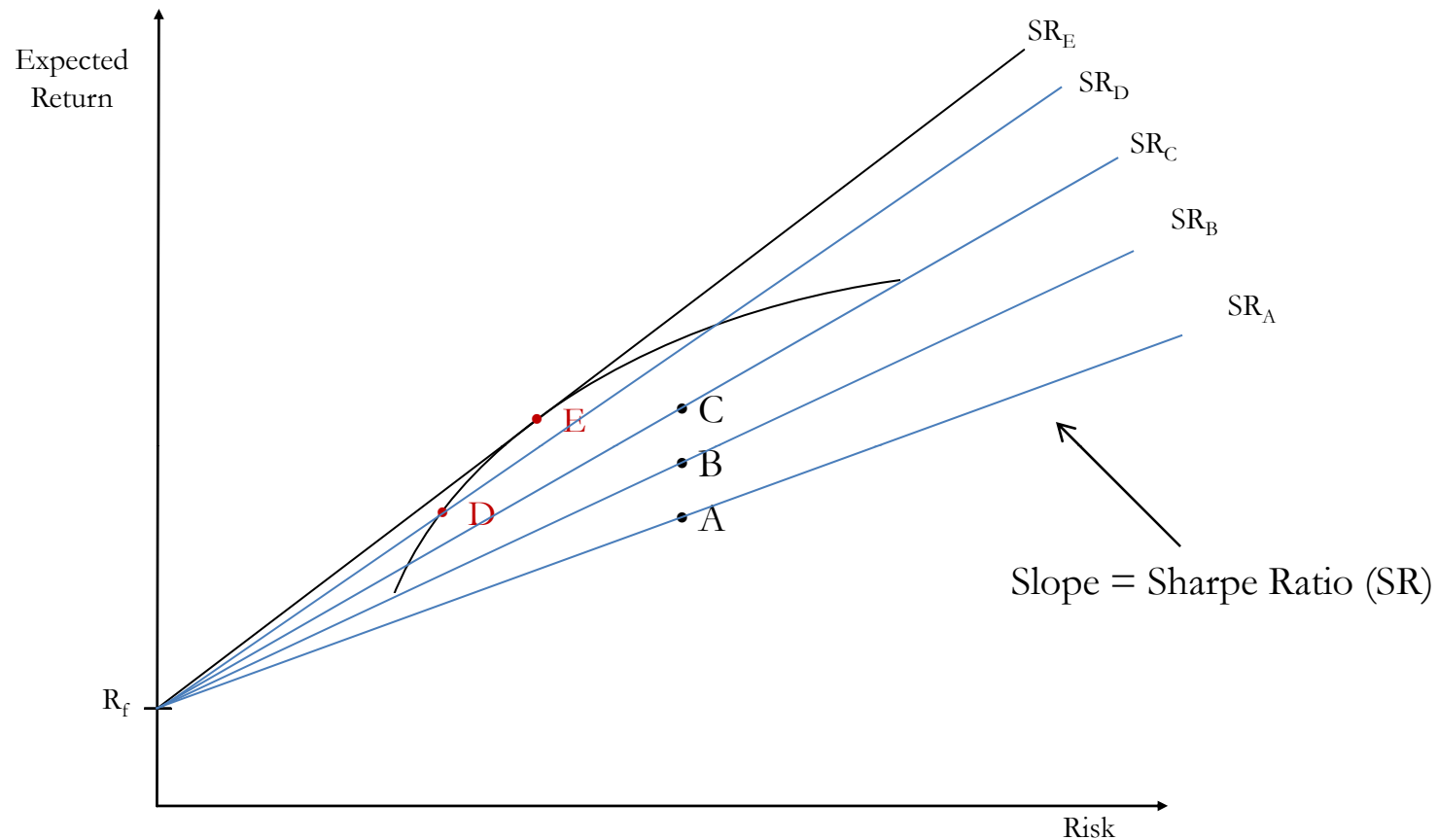
C – INTECH aggressive active portfolio (e.g., Broad Large Cap Core)

Maximize information ratio objective
(low variability to index, i.e. low tracking error).

D – Low Volatility portfolio with market (+) long-term return objective

E – Managed Volatility (aka high Sharpe Ratio) portfolio

Sharpe Ratio strategies.



A – Cap-weighted index (e.g., Russell 1000)

B – INTECH conservative active portfolio (e.g., Broad Enhanced Index)

C – INTECH aggressive active portfolio (e.g., Broad Large Cap Core)

D – Low Volatility portfolio with market (+) long-term return objective

E – Managed Volatility (aka high Sharpe Ratio) portfolio

Portfolios D and E are further away from the cap-weighted index (Portfolio A). They achieve higher Sharpe Ratios and greater efficiency in exchange for greater variability around the index (tracking error).

This page is intentionally left blank.

Absolute Volatility Strategies: A Natural Evolution

- Instead of attempting to minimize the tracking error, the absolute volatility strategies attempt to **minimize the absolute volatility** for a given target excess return.
- **Capitalizing on over 24 years of experience:**
 - Similar to all of INTECH's existing products, alpha is generated via **volatility capture**.
 - Absolute volatility strategies strongly rely on **estimates of volatilities and correlations**; INTECH has been estimating volatilities and correlations as part of its volatility capture process since 1987.

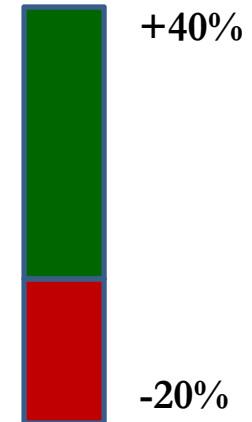
	INTECH's Traditional Active Strategies	INTECH's Absolute Volatility Strategies	
		Low Volatility	Managed Volatility
Risk Objective	Minimize tracking error	Minimize standard deviation	Minimize standard deviation
Excess Return Target*	Approx. 1% to 4%	Market-like returns, net of fees	Approx. 3% to 4%
Alpha Source	Volatility capture	Volatility capture	Volatility capture
Portfolio Absolute Volatility	Market-like (relatively high)	Low	Medium
Tracking Error	Low	High	Medium
Information Ratio	High	Low	Medium
Sharpe Ratio	Market-like (relatively low) to medium	Medium	High

*Gross of fees, annualized, unless otherwise stated. The excess return targets are based on mathematical projections. Actual results may vary and the targets should not be considered or relied upon as a performance guarantee.

Low Volatility: Illustrative Example

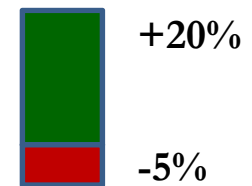
Hypothetical “Market” Portfolio:

- The market can move up 40% or down 20%, with 50% probability in either direction.
- 10% annual expected arithmetic return (30% standard deviation).
- Over the long run, the market’s compound return is 12% over two years ($1.4 * 0.8 = 1.12$), or **5.83%** per year; this is *less* than the expected arithmetic return.



Hypothetical “Low Volatility” Portfolio:

- The portfolio can move up 20% or down 5%, with 50% probability for either outcome.
- 7.5% annual expected arithmetic return (12.5% standard deviation) - i.e., lower expected arithmetic return and lower risk than the hypothetical market portfolio.
- Over the long run, the portfolio’s compound return is 14% over two years ($1.2 * 0.95 = 1.14$), or **6.77%** per year; this is *less* than the expected arithmetic return but **higher** than the hypothetical market’s compound return.



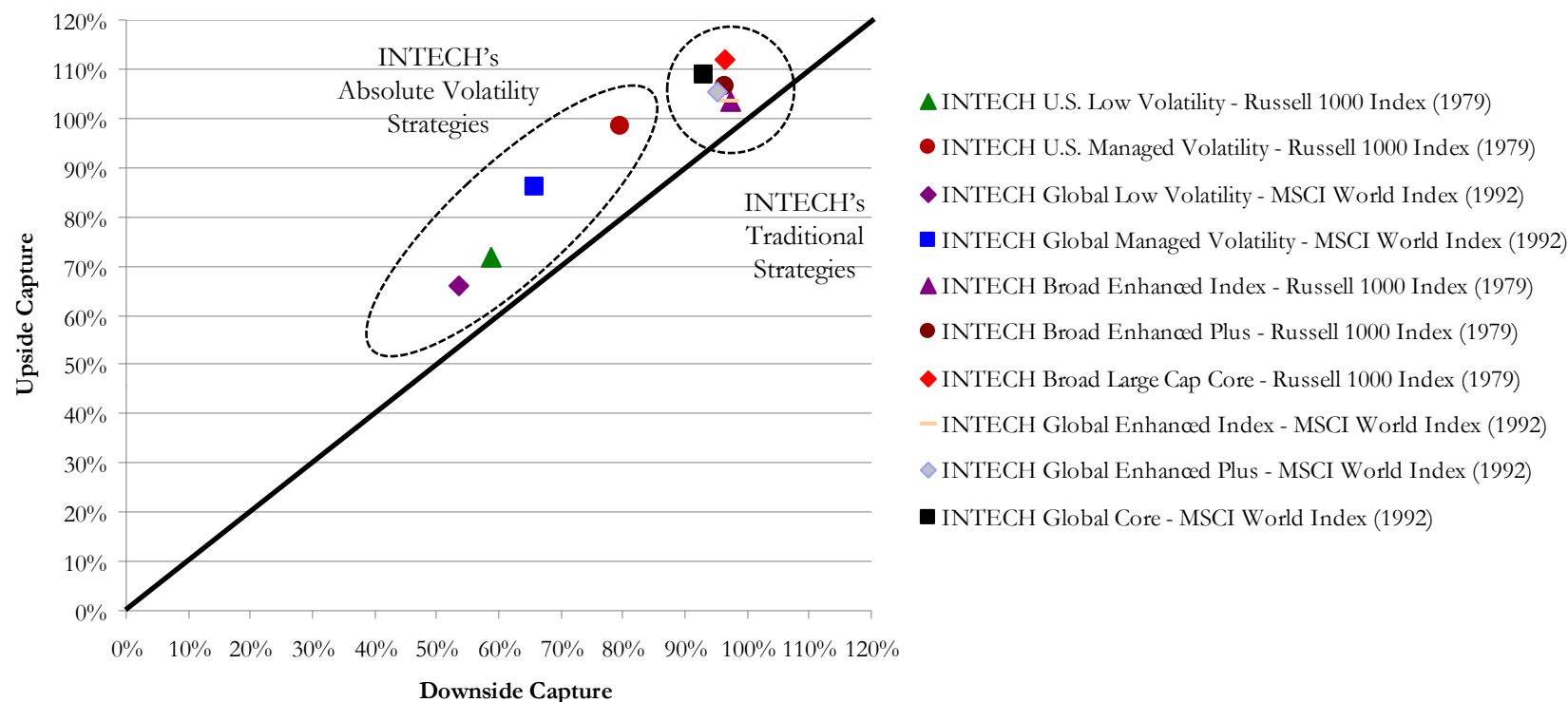
The low-volatility portfolio has a lower expected arithmetic return than the market; despite this, it also has a higher long-term return than the market portfolio.

- The low-volatility portfolio eventually outperforms the market by restricting the big downside losses, which allows for more-efficient compounding of performance over the long term.
- Understanding the true source of this difference between the arithmetic and compound (geometric) returns has been a key insight underlying INTECH’s investment process for more than 24 years.

Simulated Upside/Downside Capture Analysis (monthly data)*



As of December 31, 2010



- Over the long term, the traditional information ratio-based products have outperformed in both up and down markets but have been subject to a large portion of the absolute decline in down markets and to market-like volatility levels.
- The low-volatility and managed-volatility strategies attempt to provide greater downside protection, lower absolute volatility levels, and superior risk-return tradeoff (higher Sharpe Ratios) in exchange for reduced upside performance.

* Statistics for Global Low Volatility, Global Managed Volatility, Global Enhanced Index, Global Enhanced Plus, and Global Core are relative to the MSCI World Index and are provided for simulated data for the period of January 1, 1992 – December 31, 2010. Statistics for U.S. Low Volatility, U.S. Managed Volatility, Broad Enhanced Index, Broad Enhanced Plus, and Broad Large Cap Core are relative to the Russell 1000 Index and are provided for simulated data for the period of January 1, 1979 – December 31, 2010.

Upside/Downside capture shows what percentage of the market's performance (as evidenced by an appropriate market index) the manager 'captured.' Up market capture is the extent to which the strategy gained value relative to the index over months when the index achieved gains. Down market capture is the extent to which the strategy lost value over months when the index declined. A measure of 100% means the strategy results went up (or down) exactly the same amount as the broader market index. Thus, a negative down market capture ratio means the manager achieved gains over months when the index declined.

See Disclaimer for additional information.

A High Sharpe Ratio is All About Consistency: U.S. Portfolios

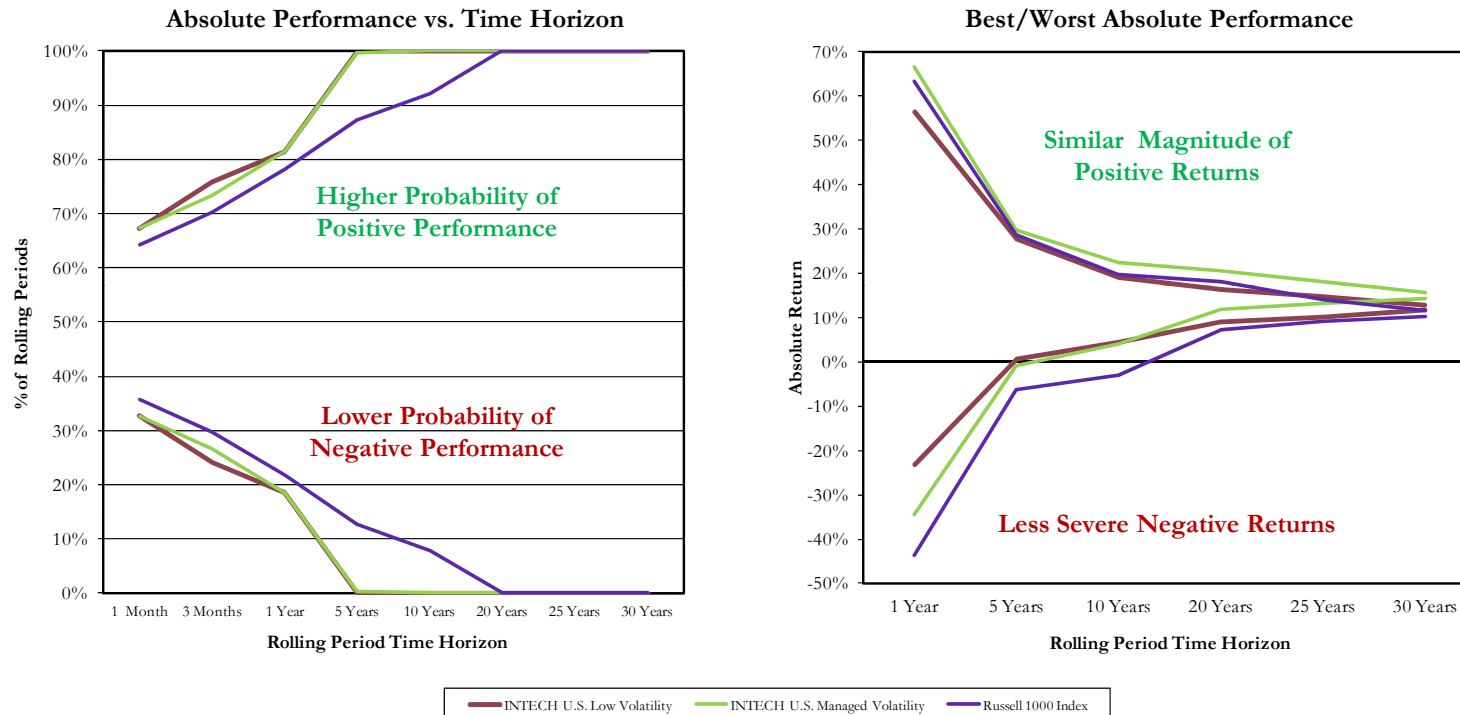


INTECH U.S. Low Volatility – Simulated

INTECH U.S. Managed Volatility – Simulated

Russell 1000 Index – Simulated

January 1, 1979 – December 31, 2010



- INTECH's absolute volatility strategies target an excess return above the cap-weighted benchmark at lower absolute volatility than the benchmark; they are expected to have higher Sharpe Ratios than the benchmark (greater mean-variance efficiency) and to provide greater downside protection.
- A strategy with a high Sharpe Ratio will be more consistent at achieving a certain target rate of return.
- The absolute volatility strategies' simulations show that, over the medium term, these strategies have a higher likelihood of not losing money. They also provide greater downside protection and beat their benchmarks over time. This is achieved by sacrificing some of the upside in the shorter term.

Rolling periods are calculated monthly. See Disclaimer for additional information.

A High Sharpe Ratio is All About Consistency: Global Portfolios

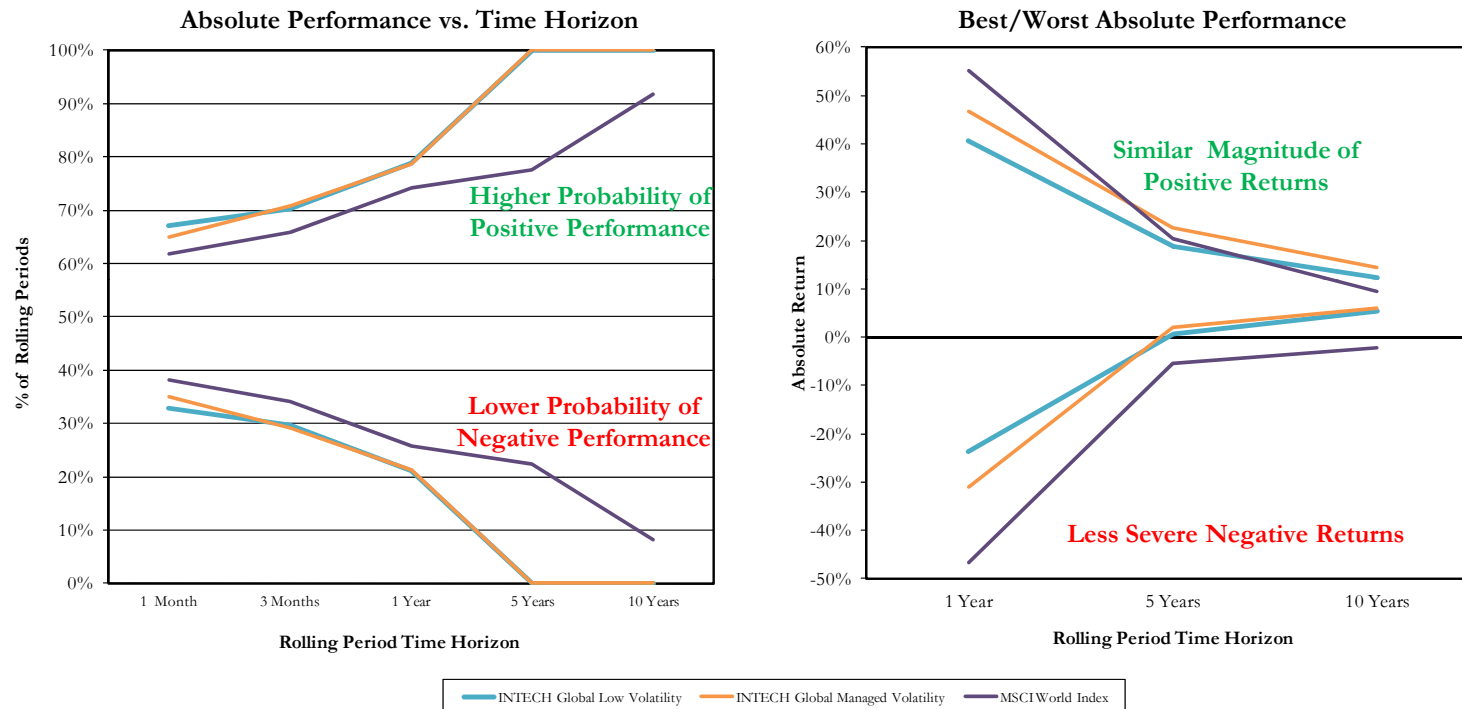


INTECH Global Low Volatility – Simulated

INTECH Global Managed Volatility – Simulated

MSCI World Index – Simulated

January 1, 1992 – December 31, 2010



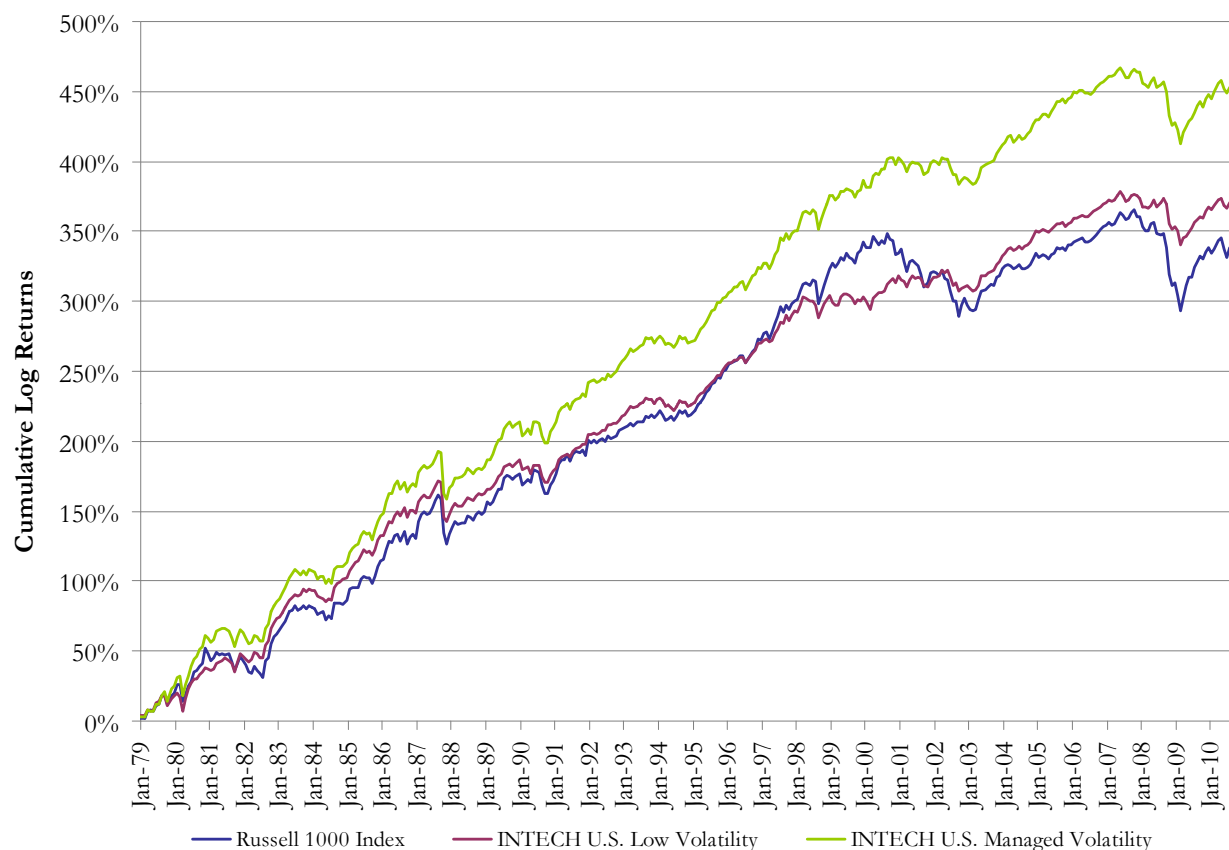
- INTECH's absolute volatility strategies target an excess return above the cap-weighted benchmark at lower absolute volatility than the benchmark; they are expected to have higher Sharpe Ratios than the benchmark (greater mean-variance efficiency) and to provide greater downside protection.
- A strategy with a high Sharpe Ratio will be more consistent at achieving a certain target rate of return.
- The absolute volatility strategies' simulations show that, over the medium term, these strategies have a higher likelihood of not losing money. They also provide greater downside protection and beat their benchmarks over time. This is achieved by sacrificing some of the upside in the shorter term.

Rolling periods are calculated monthly. See Disclaimer for additional information.

Simulated Cumulative Log Monthly Returns: U.S.

Russell 1000 Index

January 1, 1979 – December 31, 2010



	INTECH		
	<u>Russell 1000 Index</u>	<u>U.S. Low Volatility</u>	<u>U.S. Managed Volatility</u>
Absolute Return (Annualized)	11.66%	12.66%	15.69%
Standard Deviation (Annualized)	15.71%	11.71%	14.32%
Sharpe Ratio	0.38	0.60	0.70
Tracking Error (Annualized)	N/A	7.92%	5.56%
Beta	1.00	0.65	0.85

Beta is the estimated coefficient from a regression of monthly portfolio returns on monthly Russell 1000 Index returns.
See Disclaimer for additional information.

Simulated Calendar-Year Performance: U.S. Portfolios

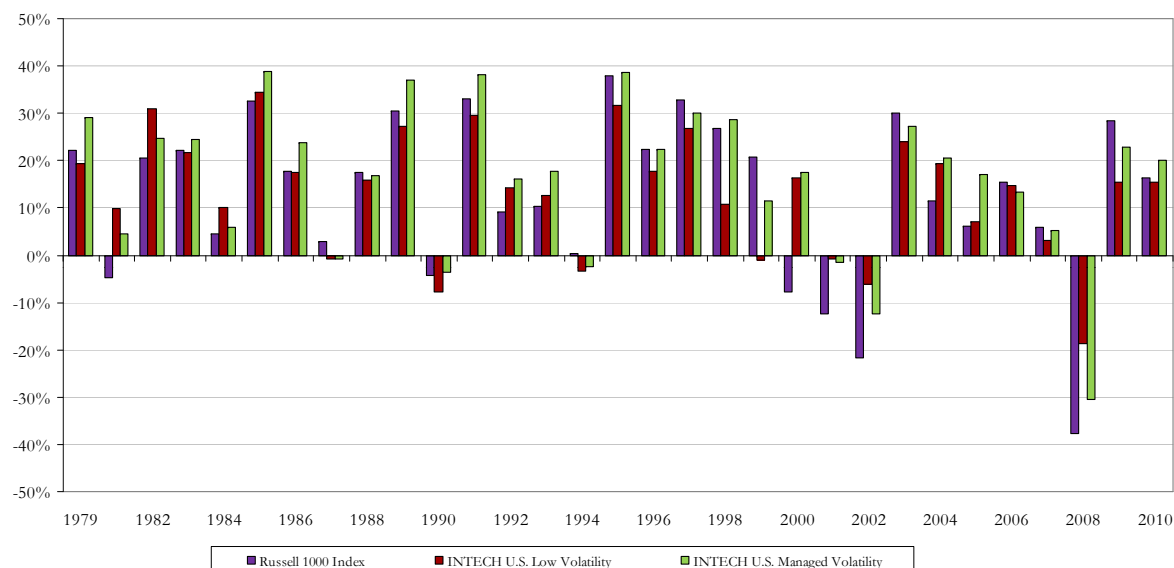


1979 – 2010

Russell 1000 Index

Simulated INTECH U.S. Low Volatility

Simulated INTECH U.S. Managed Volatility



	2008	2009	\$1 Cumulative Growth
INTECH U.S. Low Volatility	-18.69%	15.33%	\$0.94
Russell 1000 Index	-37.61%	28.42%	\$0.80
Difference	18.92%	-13.09%	\$0.14

	2008	2009	\$1 Cumulative Growth
INTECH U.S. Managed Volatility	-30.44%	22.86%	\$0.85
Russell 1000 Index	-37.61%	28.42%	\$0.80
Difference	7.17%	-5.56%	\$0.05

- Both strategies outperform the Russell 1000 Index over time.
- The Managed Volatility strategy outperforms the index in most years (22 out of 32 years) and does so with lower absolute volatility.
- The Low Volatility strategy lags the Russell 1000 more frequently (20 out of 32 years), but beats the index over time.
- Both strategies have lower absolute volatility than the Russell 1000.
- Both strategies offer the potential for greater downside protection relative to the cap-weighted index.
- Downside protection is invaluable: losing 40% requires a gain of 67% to recover, but losing 20% requires a gain of only 25% to recover.

See Disclaimer for additional information.

This page is intentionally left blank.

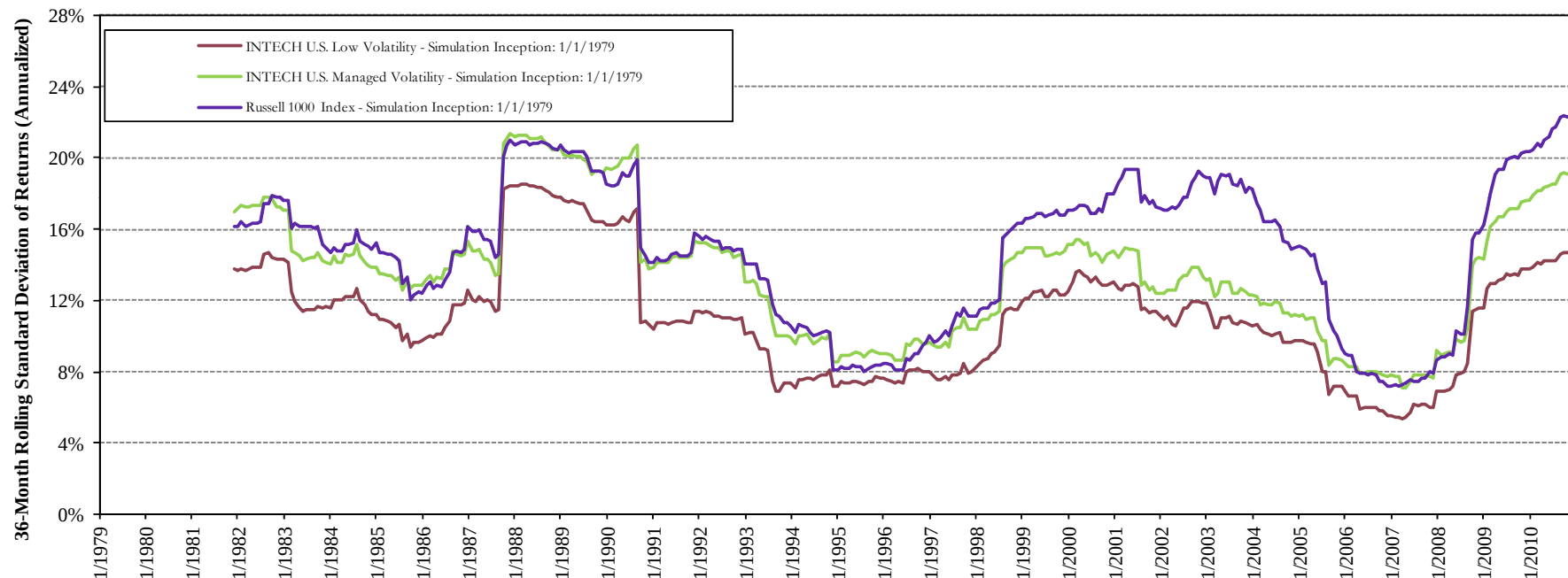
Standard Deviation of Returns: U.S. Portfolios



INTECH U.S. Low Volatility – Simulated

INTECH U.S. Managed Volatility – Simulated

Russell 1000 Index – Simulated



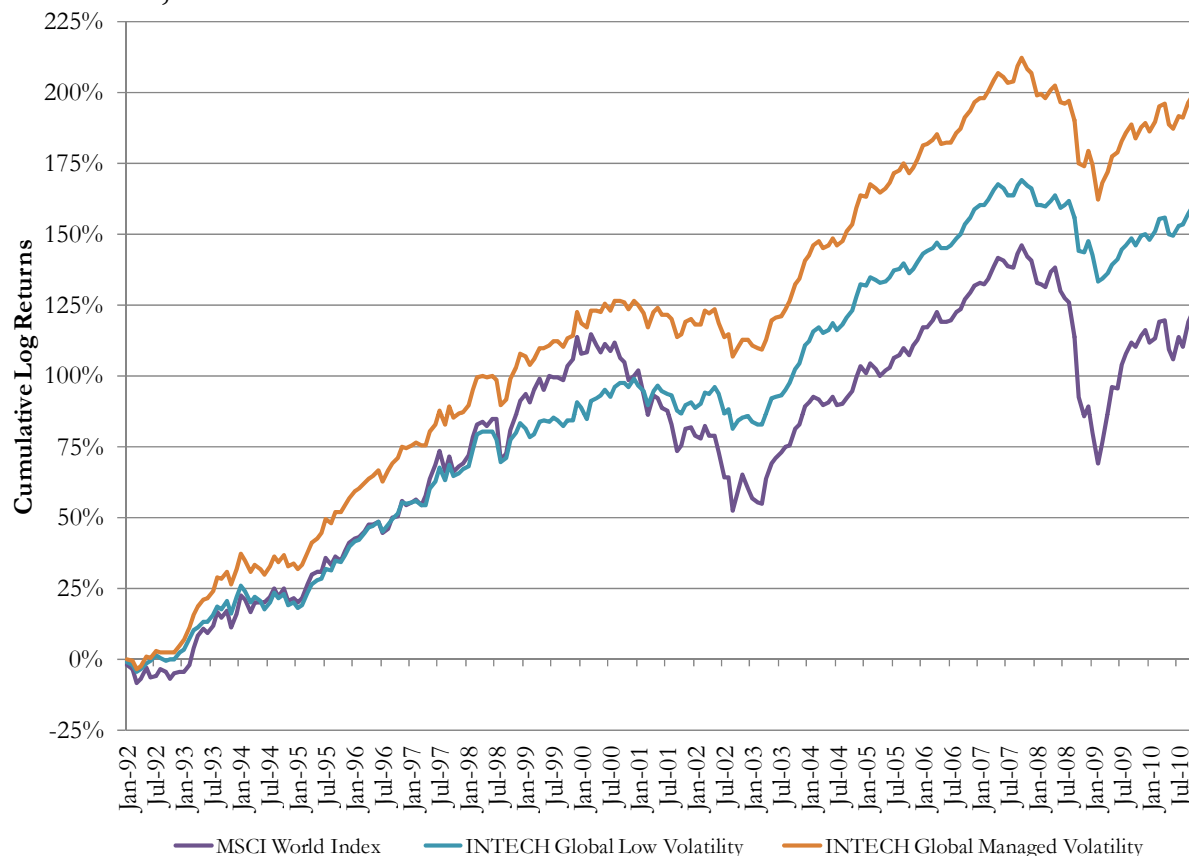
The Low Volatility and Managed Volatility strategies attempt to provide lower absolute volatility levels, greater downside protection and superior risk-return tradeoff (higher Sharpe Ratios).

Rolling periods calculated monthly since January 1, 1979.
See Disclaimer for additional information.

Simulated Cumulative Log Monthly Returns: Global

MSCI World Index

January 1, 1992 - December 31, 2010



	<u>MSCI World Index</u>	<u>INTECH Global Low Volatility</u>	<u>INTECH Global Managed Volatility</u>
Absolute Return (Annualized)	6.94%	8.97%	11.30%
Standard Deviation (Annualized)	15.18%	9.97%	11.64%
Sharpe Ratio	0.23	0.55	0.68
Tracking Error (Annualized)	N/A	8.38%	6.49%
Beta	1.00	0.56	0.70

Beta is the estimated coefficient from a regression of monthly portfolio returns on monthly MSCI World Index returns.
See Disclaimer for additional information.

Simulated Calendar-Year Performance: Global Portfolios

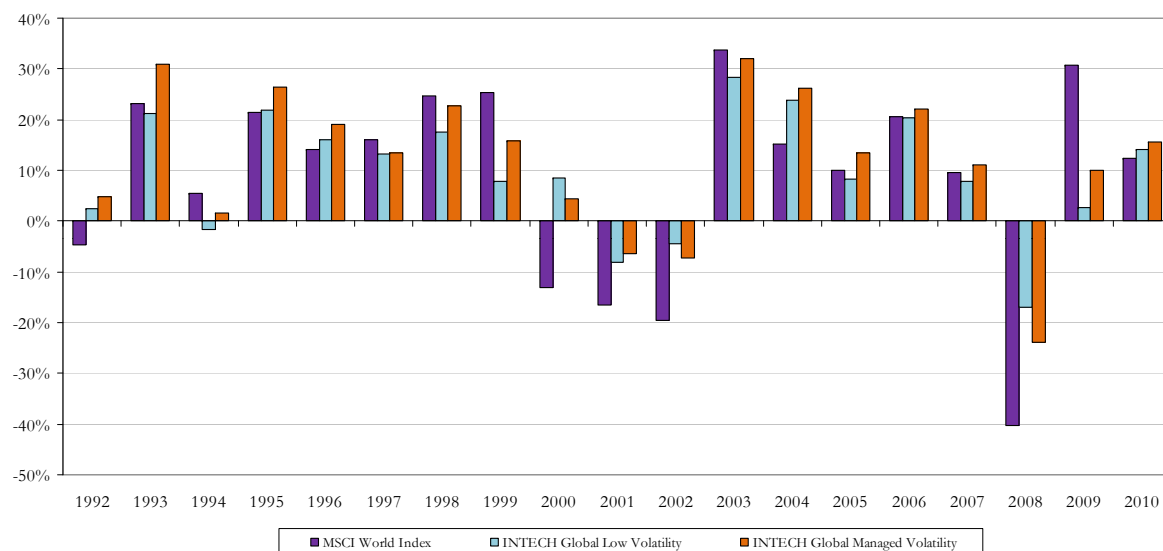


1992 – 2010

MSCI World Index

Simulated INTECH Global Low Volatility

Simulated INTECH Global Managed Volatility



	2008	2009	\$1 Cumulative Growth
INTECH Global Low Volatility	-16.98%	2.61%	\$0.85
MSCI World Index	-40.30%	30.82%	\$0.78
Difference	23.32%	-28.21%	\$0.07

	2008	2009	\$1 Cumulative Growth
INTECH Global Managed Volatility	-23.93%	9.97%	\$0.84
MSCI World Index	-40.30%	30.82%	\$0.78
Difference	16.37%	-20.85%	\$0.06

- Both strategies outperform the MSCI World Index over time.
- The Managed Volatility strategy outperforms the index in most years (13 out of 19 years) and does so with lower volatility.
- The Low Volatility strategy lags the MSCI World more often than not (10 out of 19 years), but it beats the index over time.
- Both strategies have lower volatility than the MSCI World.
- Both strategies offer the potential for greater downside protection relative to the cap-weighted index.
- Downside protection is invaluable: losing 40% requires a gain of 67% to recover, but losing 20% requires a gain of only 25% to recover.

See Disclaimer for additional information.

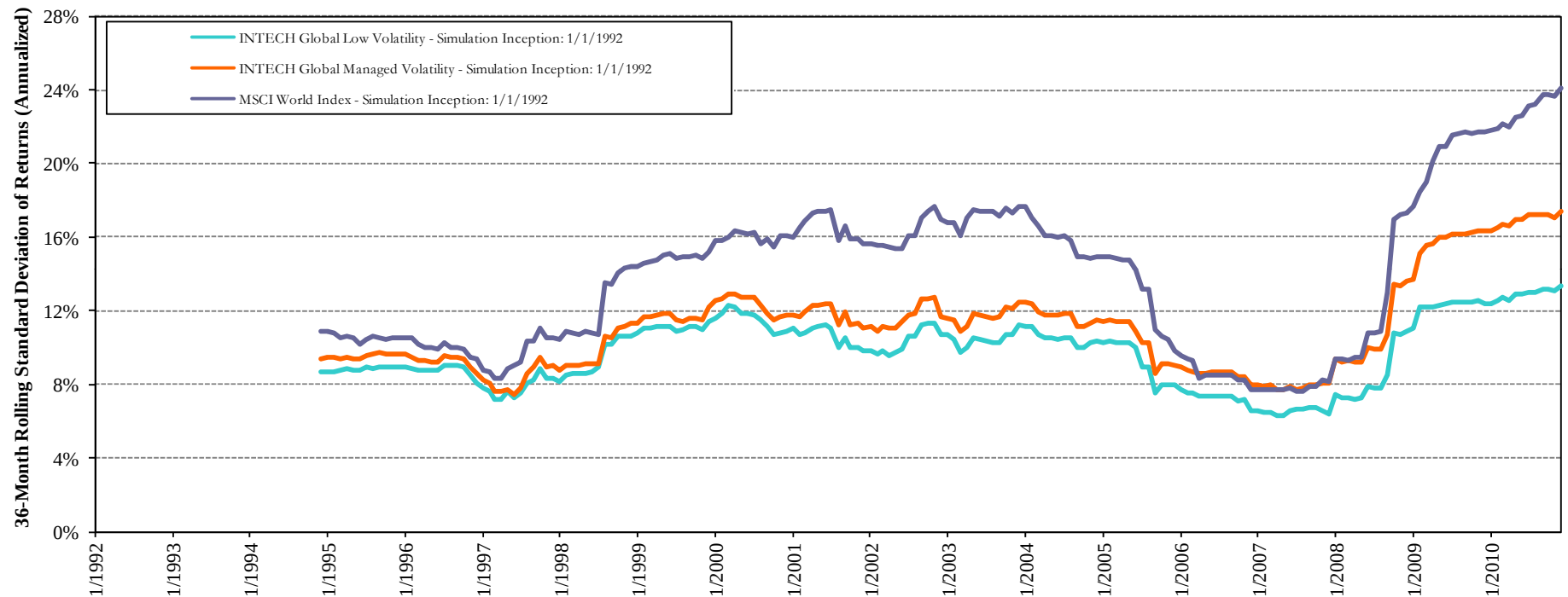
This page is intentionally left blank.

Standard Deviation of Returns: Global Portfolios

INTECH Global Low Volatility – Simulated

INTECH Global Managed Volatility – Simulated

MSCI World Index – Simulated



The Low Volatility and Managed Volatility strategies attempt to provide lower absolute volatility levels, greater downside protection and superior risk-return tradeoff (higher Sharpe Ratios).

- Capitalizes on over 24 years of investment management experience:
 - Volatility capture as an alpha source.
 - Experience in estimating volatilities and correlations.
- Outperform cap-weighted indexes at substantially lower volatility levels.
- Higher Sharpe Ratios (better risk-return tradeoff).
- Greater downside protection and lower probability of “blowing up” in any given year.

In addition, INTECH's absolute volatility strategies have the potential to:

- Be a diversified alpha source in investors' portfolios.
- Allow plan managers to allocate risk budgets in more effective ways.
- Reduce tracking error to plan liabilities while maintaining similar or higher rates of return.

- INTECH's roots are in the study, estimation and utilization of volatility.
- INTECH has simply extended the process from *minimizing the tracking error* of the portfolio to **minimizing the absolute standard deviation** of the portfolio.
- INTECH is typically a non-correlated source of alpha; it uses its own proprietary estimates of stocks' variances and covariances and, consequently, its portfolios' holdings can be quite different from its peers' portfolios, which use off-the-shelf risk models to control risk.
- INTECH has engineered two investment solutions:
 - **Low Volatility:** Market-like (net of fee) returns with significantly less standard deviation than the index.
 - **Managed Volatility:** Above-market returns (about 3 – 4% per annum over the long term, gross of fees) with lower standard deviation than the index (high Sharpe Ratio).

INTECH has built its reputation on managing volatility.

This page is intentionally left blank.



Appendix

Separate Account Investment Management Fees



Product	\$ Millions	Fee
U.S. Low Volatility	First \$100 million	35 basis points
Global Low Volatility	Next \$100 million	30
	Next \$100 million	25
	Next \$200 million	22.5
	Over \$500 million	20
<i>Minimum investment size \$50 million</i>		

Performance fees are available upon request.

Separate Account Investment Management Fees



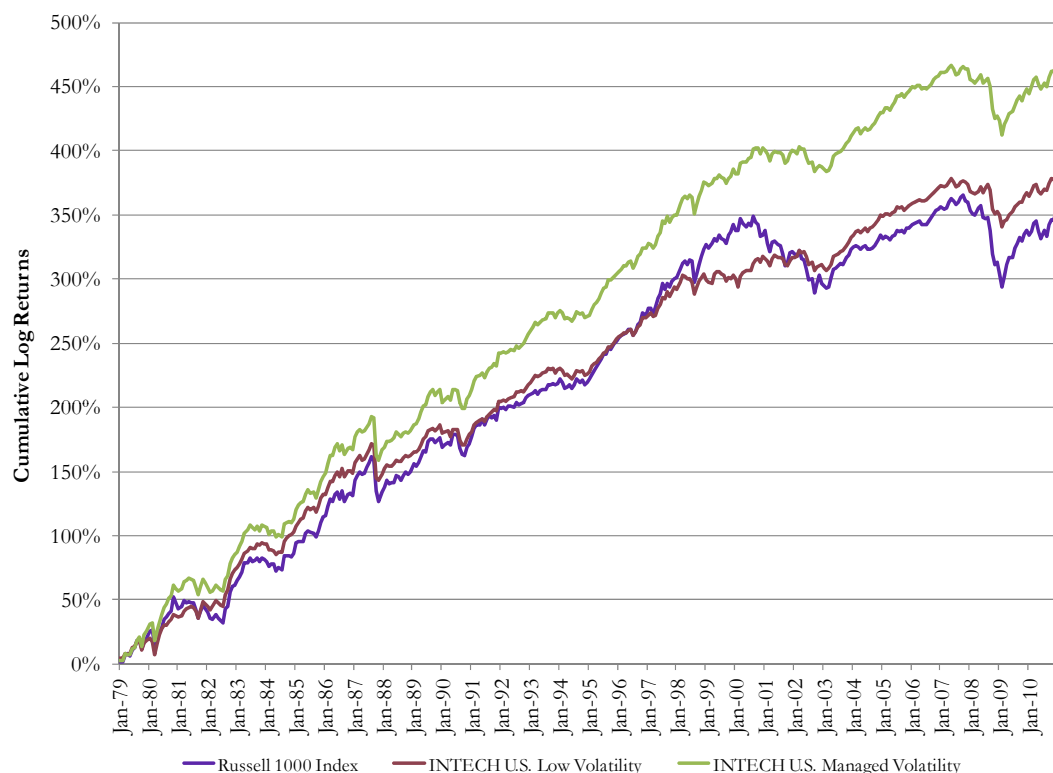
Product	\$ Millions	Fee
U.S. Managed Volatility	First \$100 million	55 basis points
Global Managed Volatility	Next \$100 million	50
	Next \$100 million	45
	Next \$200 million	42.5
	Over \$500 million	40
<i>Minimum investment size \$50 million</i>		

Performance fees are available upon request.

Simulated Cumulative Log Monthly Returns: U.S.

Russell 1000 Index

January 1, 1979 – December 31, 2010



	<u>Russell 1000 Index</u>	<u>INTECH U.S. Low Volatility</u>	<u>INTECH U.S. Managed Volatility</u>
Absolute Return (Annualized)	11.66%	12.66%	15.69%
Standard Deviation (Annualized)	15.71%	11.71%	14.32%
Sharpe Ratio	0.38	0.60	0.70
Approximate Average Turnover	N/A	60%	140%
Tracking Error (Annualized)	N/A	7.92%	5.56%
Information Ratio	N/A	0.13	0.72
Beta	1.00	0.65	0.85
Upside Capture (Monthly Returns)	100%	71.6%	98.2%
Downside Capture (Monthly Returns)	100%	58.8%	79.5%

INTECH Simulated Absolute Volatility Strategies

- Outperform over time.
- Lower absolute volatility than benchmark's (increases with strategy aggressiveness).
- Sharpe Ratio significantly higher than benchmark's.
- Sharpe Ratio highest for Managed Volatility strategy.
- Tend to outperform significantly in down markets.
- Relatively high tracking error (decreases with strategy aggressiveness).

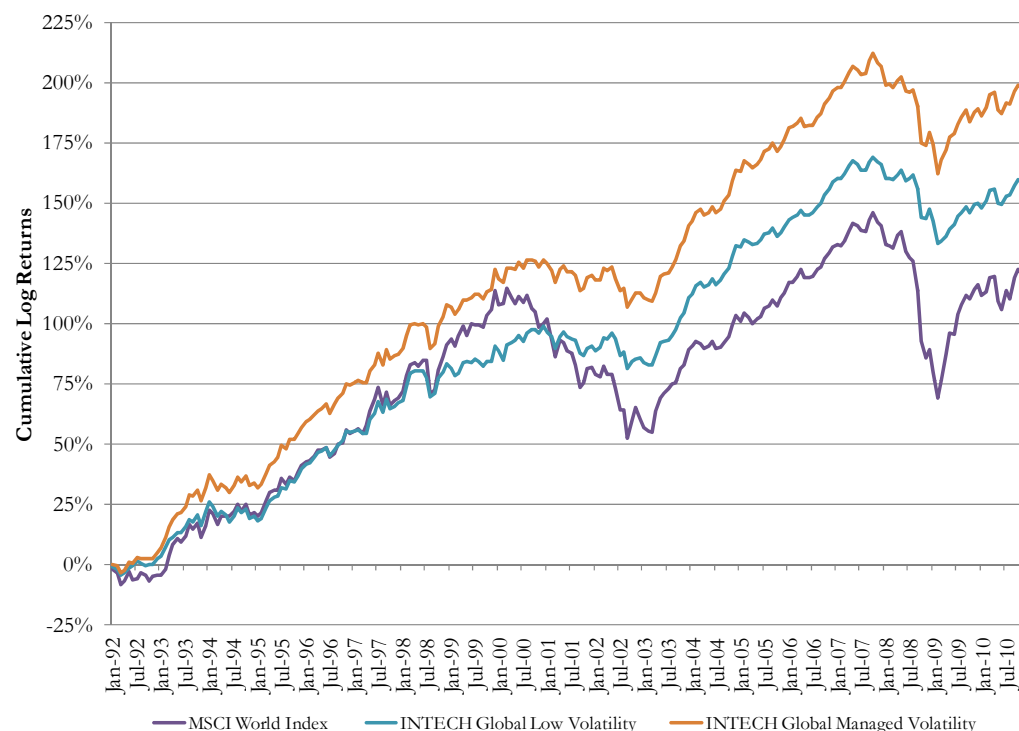
Beta is the estimated coefficient from a regression of monthly portfolio returns on monthly Russell 1000 Index returns.
See Disclaimer for additional information.

Simulated Cumulative Log Monthly Returns: Global



MSCI World Index

January 1, 1992 – December 31, 2010



	<u>MSCI World Index</u>	<u>INTECH Global Low Volatility</u>	<u>INTECH Global Managed Volatility</u>
Absolute Return (Annualized)	6.94%	8.97%	11.30%
Standard Deviation (Annualized)	15.18%	9.97%	11.64%
Sharpe Ratio	0.23	0.55	0.68
Approximate Average Turnover	N/A	90%	130%
Tracking Error (Annualized)	N/A	8.38%	6.49%
Information Ratio	N/A	0.24	0.67
Beta	1.00	0.56	0.70
Upside Capture (Monthly Returns)	100%	66.1%	86.1%
Downside Capture (Monthly Returns)	100%	53.5%	65.9%

INTECH Simulated Absolute Volatility Strategies

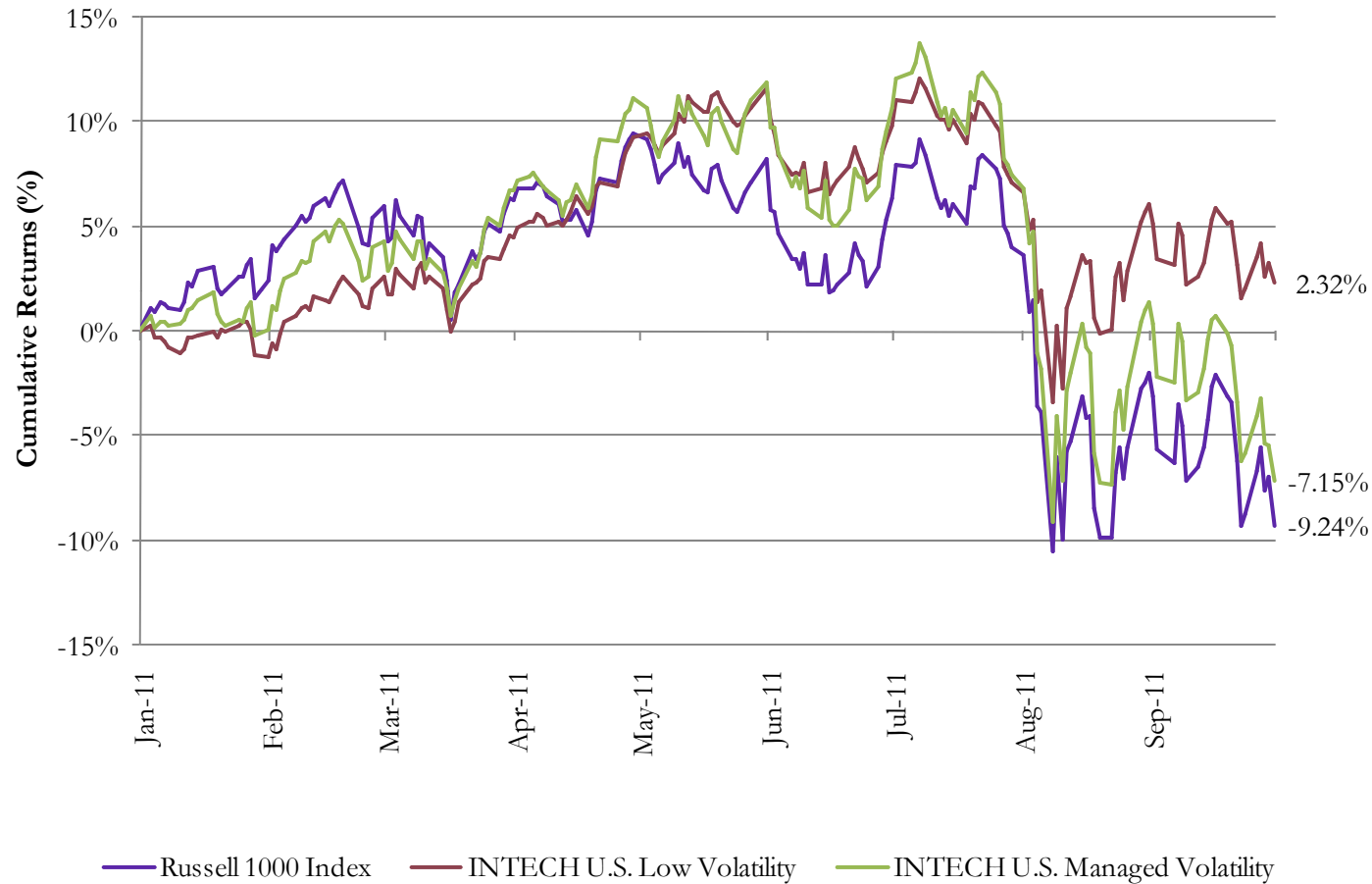
- Outperform over time.
- Lower absolute volatility than benchmark's (increases with strategy aggressiveness).
- Sharpe Ratio significantly higher than benchmark's.
- Sharpe Ratio highest for Managed Volatility strategy.
- Tend to outperform significantly in down markets.
- Relatively high tracking error (decreases with strategy aggressiveness).

Beta is the estimated coefficient from a regression of monthly portfolio returns on monthly MSCI World Index returns.
See Disclaimer for additional information.

Simulated Cumulative Returns: U.S.

Russell 1000 Index

January 1, 2011 – September 30, 2011 (out-of-sample) - Preliminary

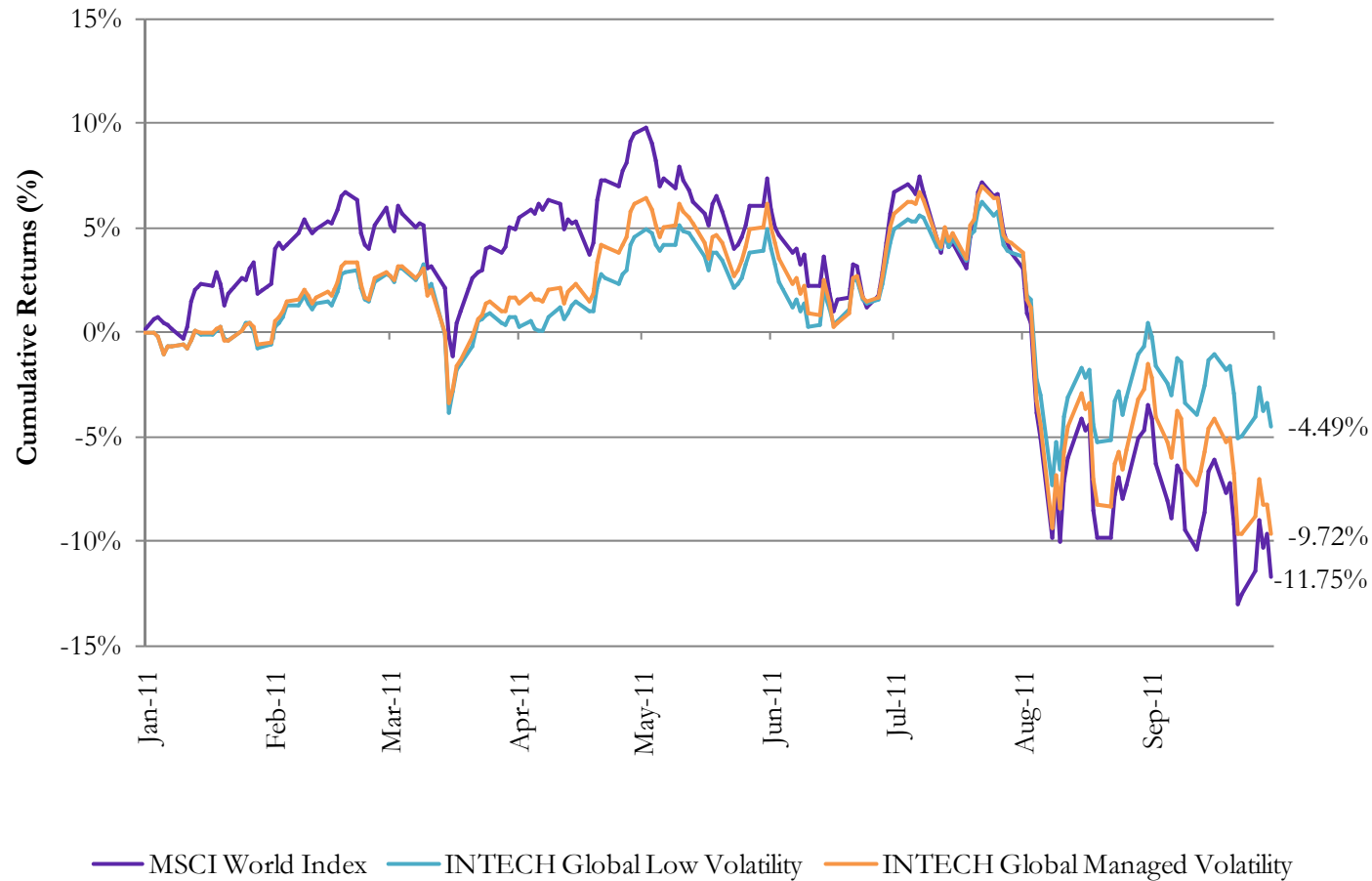


Partial year simulated returns are calculated daily and reflect the performance of the target weights with an implied estimate of trading costs. Target weights are recalculated weekly and portfolios are rebalanced to target weights daily. See Disclaimer for additional information.

Simulated Cumulative Returns: Global

MSCI World Index

January 1, 2011 – September 30, 2011 (out-of-sample) - Preliminary



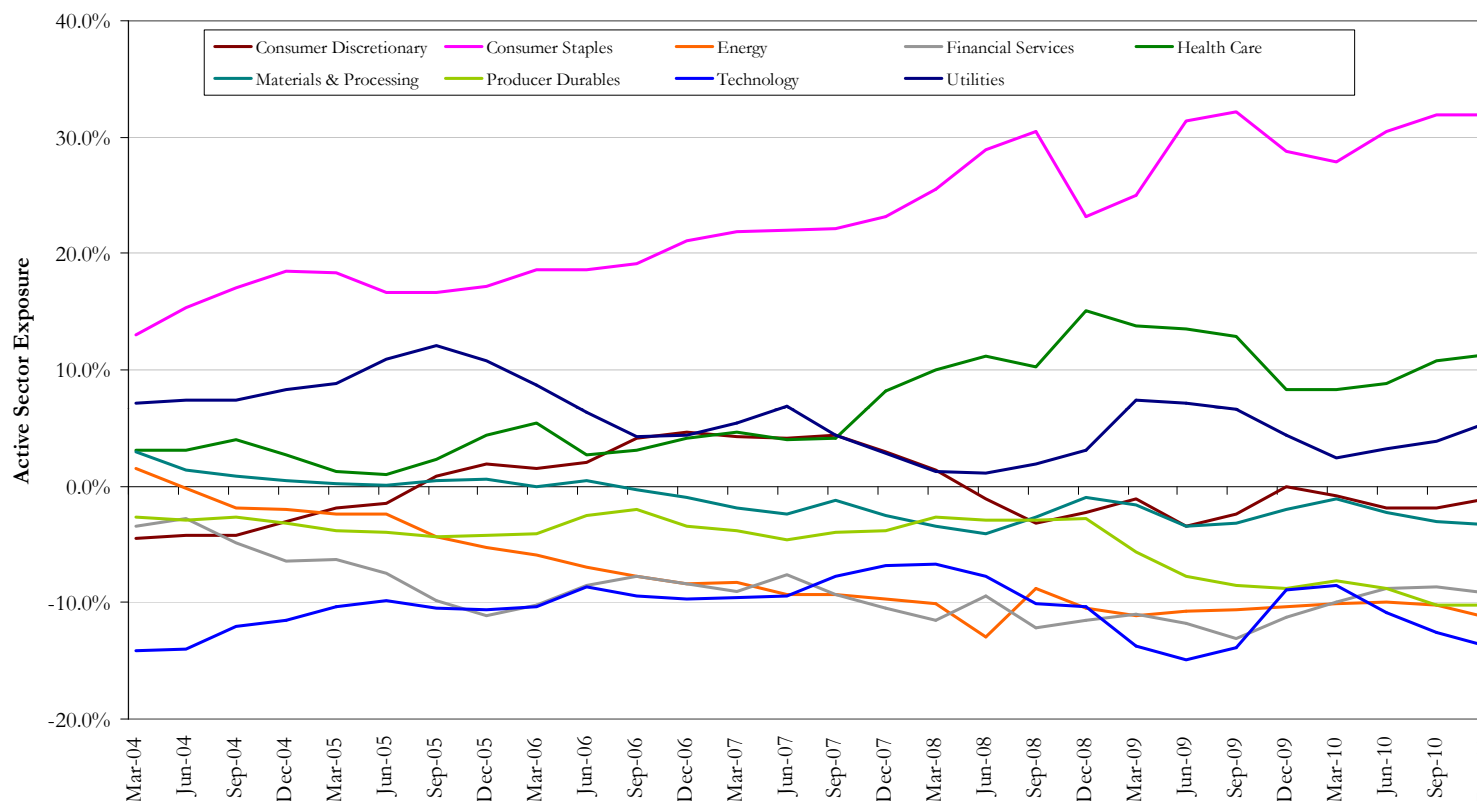
Partial year simulated returns are calculated daily and reflect the performance of the target weights with an implied estimate of trading costs. Target weights are recalculated weekly and portfolios are rebalanced to target weights daily. See Disclaimer for additional information.

Simulated Active Russell Sector Exposures: U.S. Low Volatility



INTECH U.S. Low Volatility vs. Russell 1000 Index

March 2004 – December 2010



- INTECH's U.S. Absolute Volatility strategies have a defensive tilt. They tend to overweight Consumer Staples, Utilities, and Healthcare quite consistently over time at the expense of the more cyclical industries. This allows the portfolios to achieve lower absolute volatility, yet they still outperform the cap-weighted indexes over time using volatility capture as the alpha source.
- It is unlikely that these “boring” portfolios are appealing to retail investors, fundamental investors, or quant investors focused on tracking error reduction.
- INTECH's Absolute Volatility strategies have the potential to be a diversified alpha source in investors' portfolios, allow plan managers to allocate risk budgets in more effective ways, and reduce tracking error to plan liabilities while maintaining similar or higher rates of return.

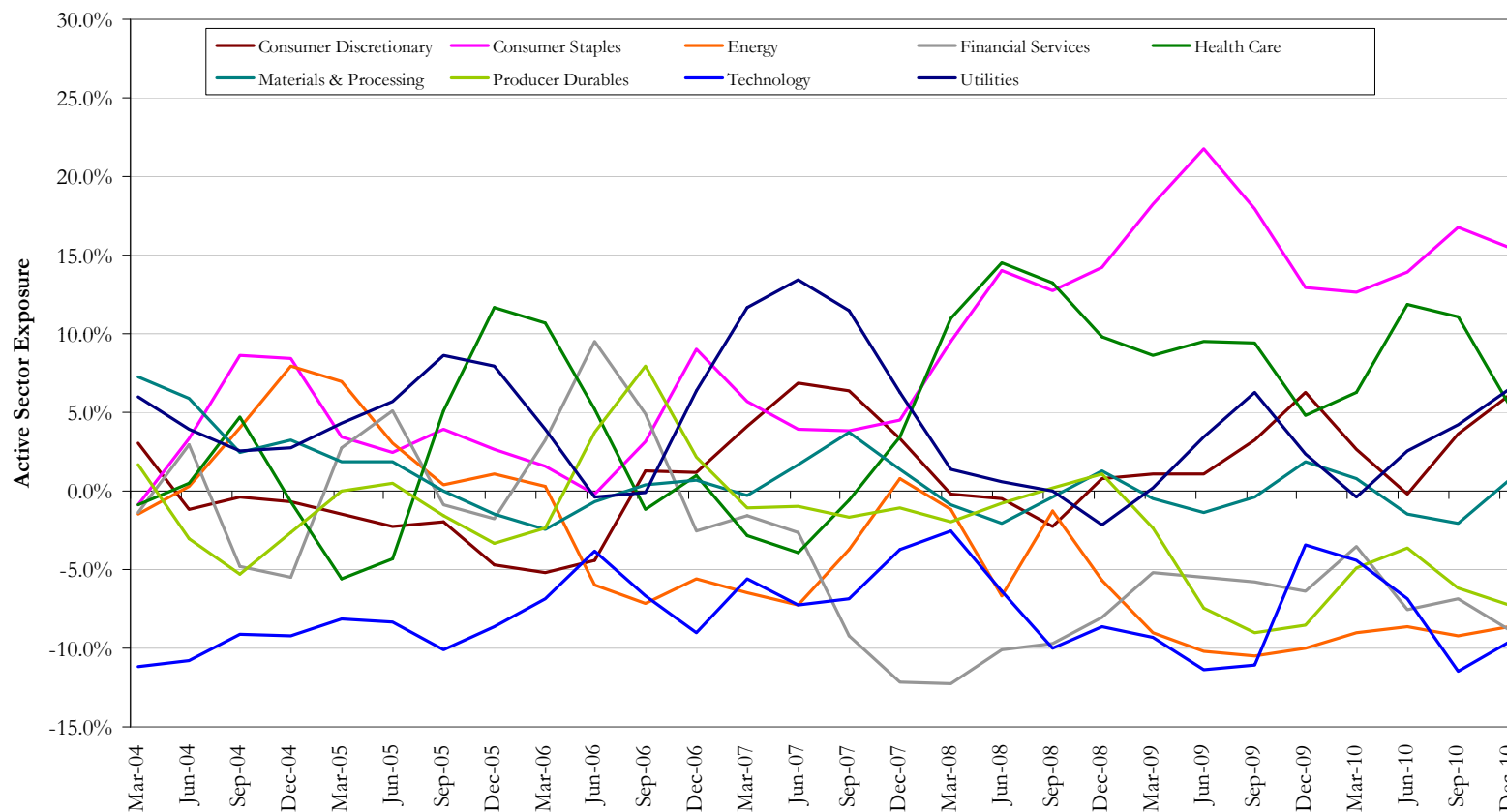
See Disclaimer for additional information.

Simulated Active Russell Sector Exposures: U.S. Managed Volatility



INTECH U.S. Managed Volatility vs. Russell 1000 Index

March 2004 – December 2010



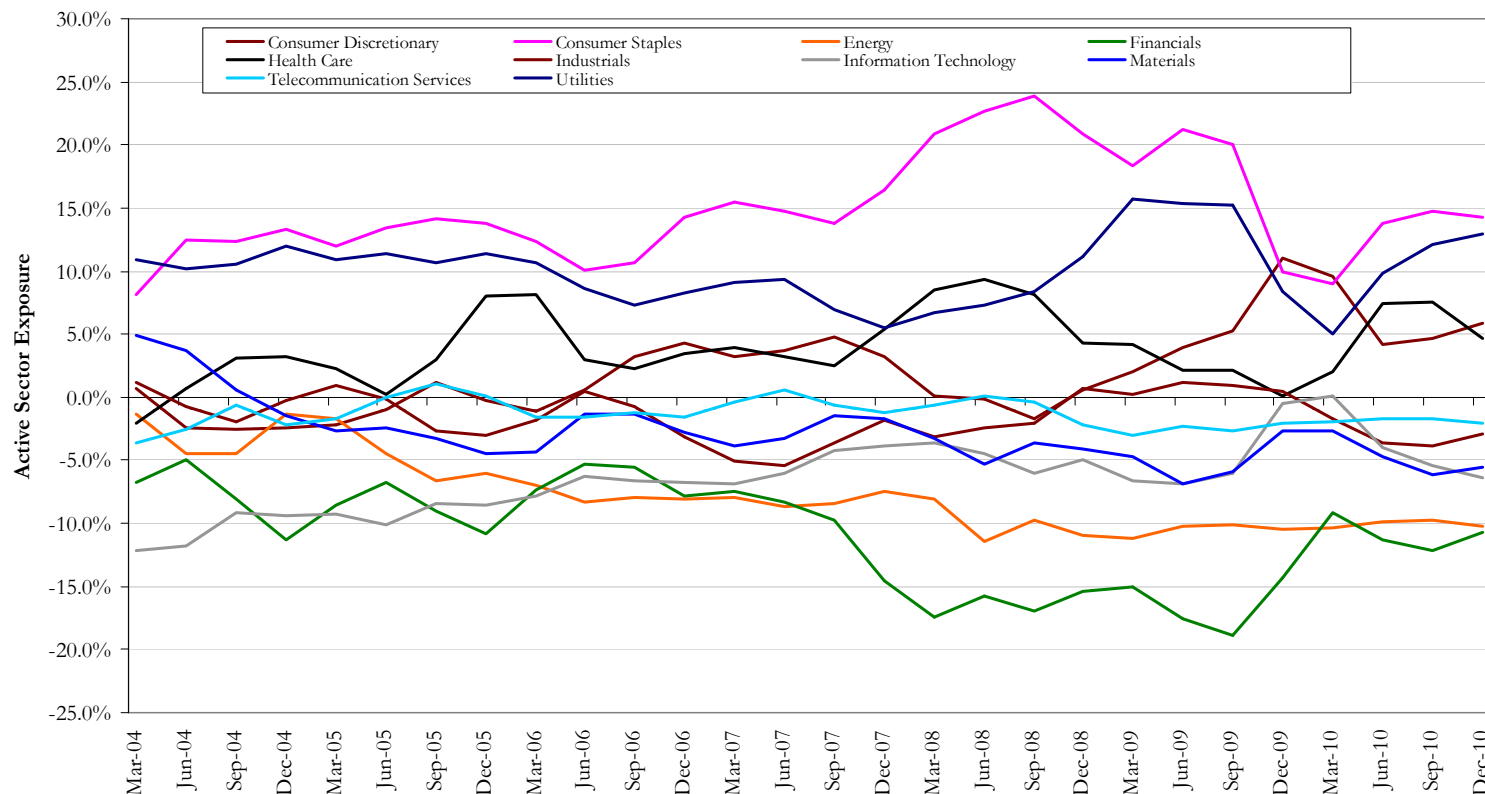
See Disclaimer for additional information.

Simulated Active GICS Sector Exposures: Global Low Volatility



INTECH Global Low Volatility vs. MSCI World Index

March 2004 – December 2010



- INTECH's Global Absolute Volatility strategies have a defensive tilt. They tend to overweight Consumer Staples, Utilities, and Healthcare quite consistently over time at the expense of the more cyclical industries. This allows the portfolios to achieve lower absolute volatility, yet they still outperform the cap-weighted indexes over time using volatility capture as the alpha source.
- It is unlikely that these “boring” portfolios are appealing to retail investors, fundamental investors, or quant investors focused on tracking error reduction.
- INTECH's Absolute Volatility strategies have the potential to be a diversified alpha source in investors' portfolios, allow plan managers to allocate risk budgets in more effective ways, and reduce tracking error to plan liabilities while maintaining similar or higher rates of return.

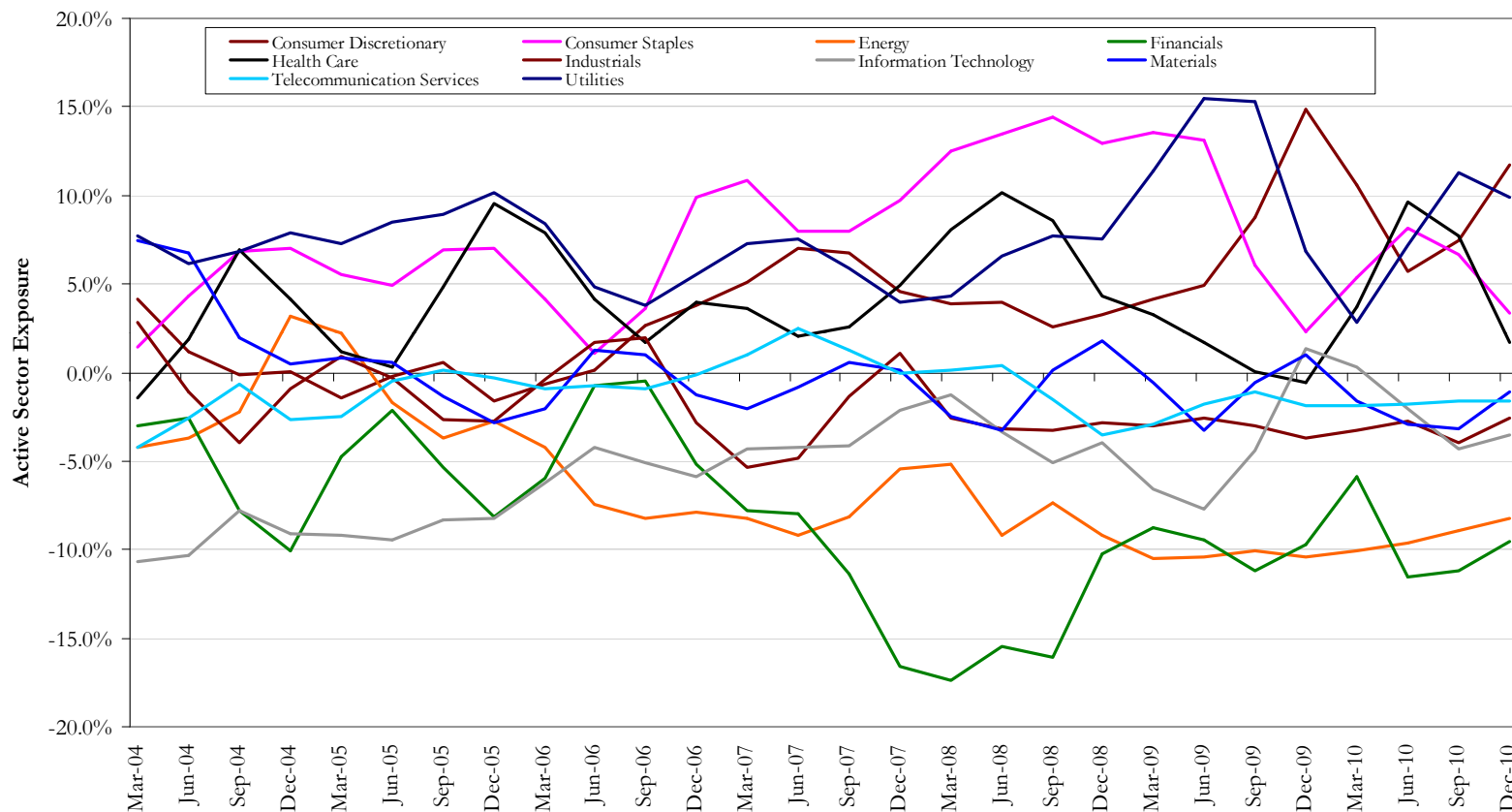
See Disclaimer for additional information.

Simulated Active GICS Sector Exposures: Global Managed Volatility



INTECH Global Managed Volatility vs. MSCI World Index

March 2004 – December 2010



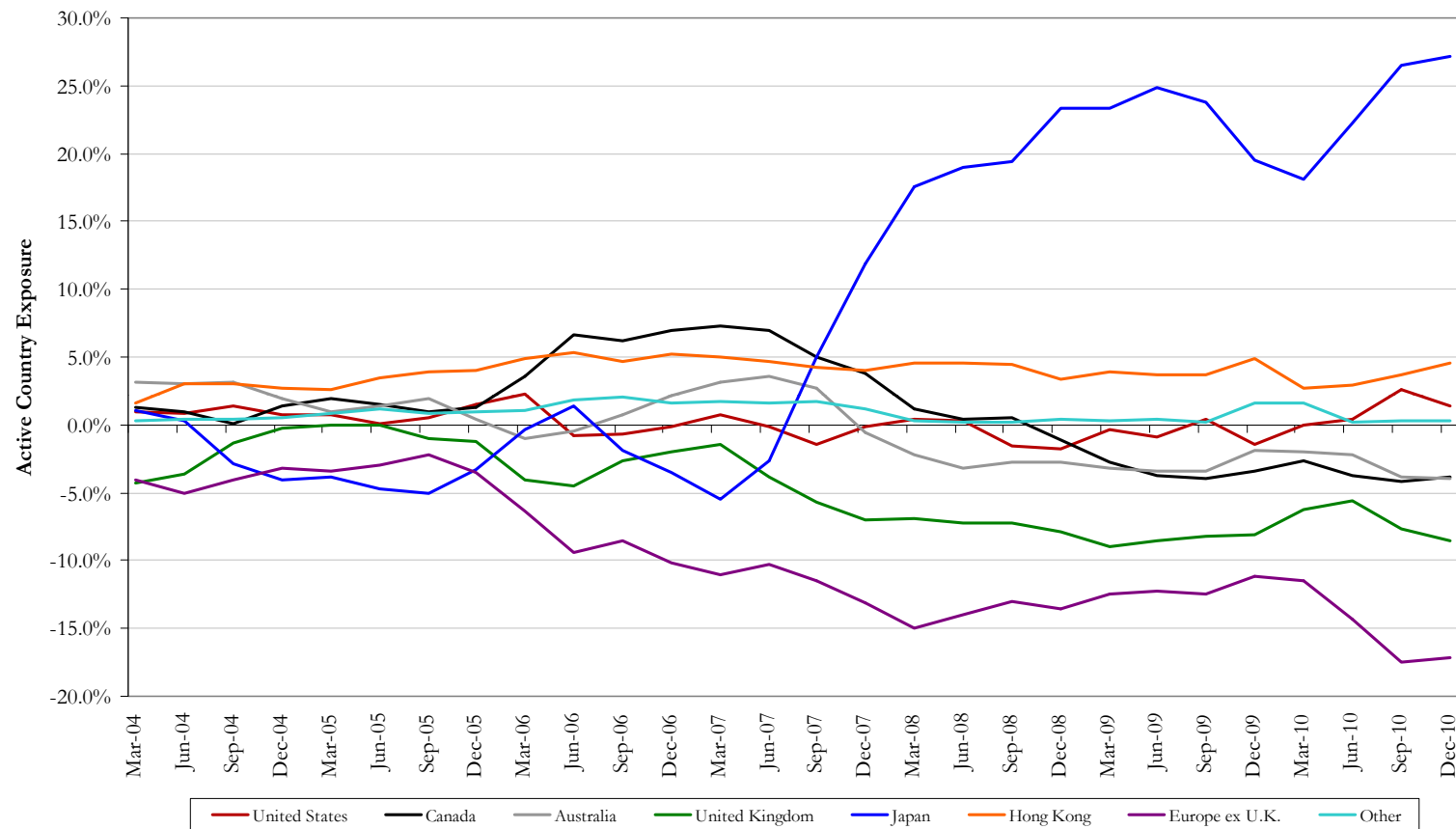
See Disclaimer for additional information.

Simulated Active Country Exposures: Global Low Volatility



INTECH Global Low Volatility vs. MSCI World Index

March 2004 – December 2010



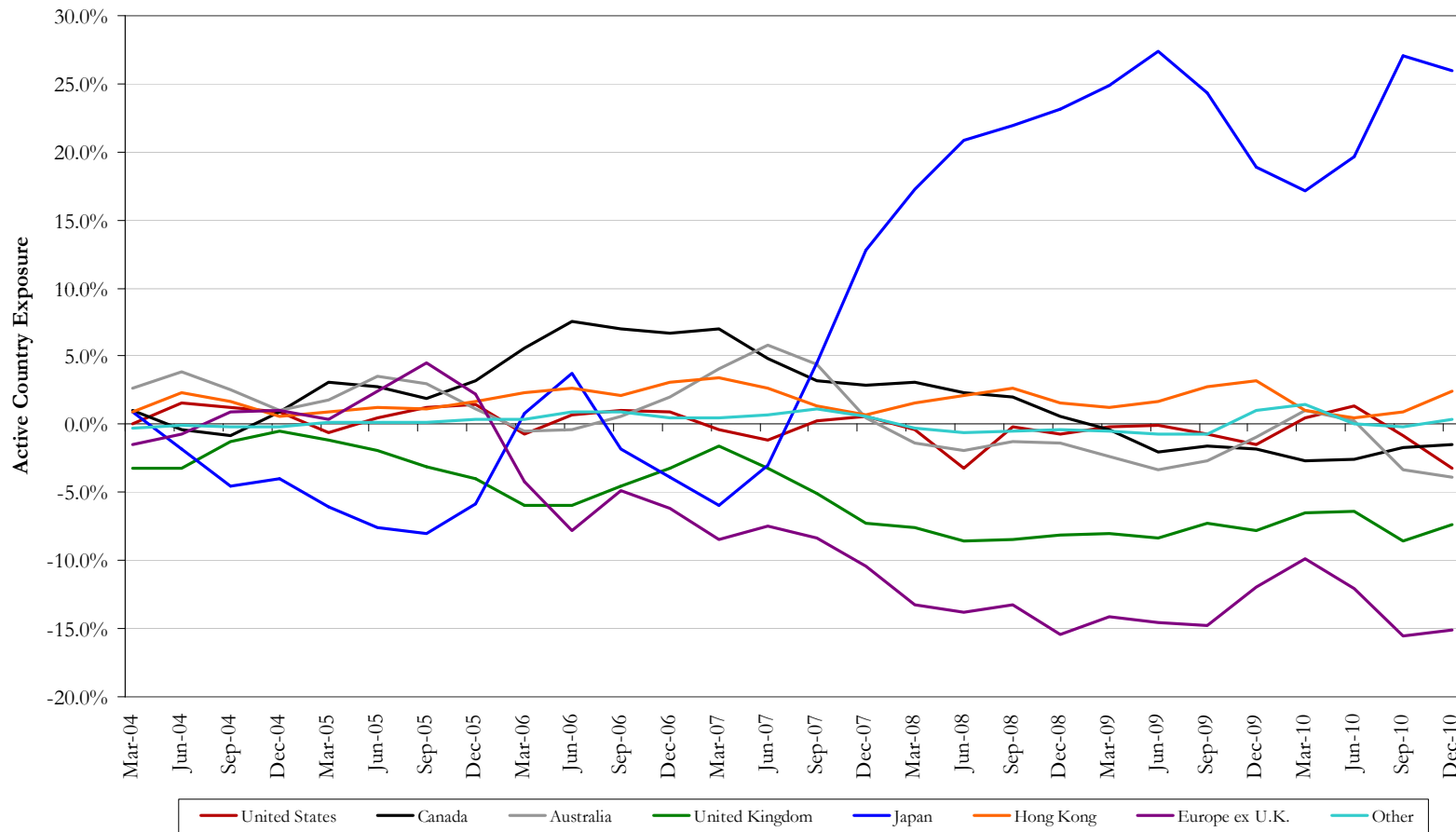
- INTECH's Global Absolute Volatility strategies do not focus on tracking error and can take on large overweight or underweight positions in various countries.
- This allows the portfolios to achieve lower absolute volatility (underweight volatile countries).
- INTECH's Absolute Volatility strategies have the potential to be a diversified alpha source in investors' portfolios, allow plan managers to allocate risk budgets in more effective ways, and reduce tracking error to plan liabilities while maintaining similar or higher rates of return.

See Disclaimer for additional information.

Simulated Active Country Exposures: Global Managed Volatility



INTECH Global Managed Volatility vs. MSCI World Index
March 2004 – December 2010



See Disclaimer for additional information.

Disclaimer

All simulated performance results have been compiled solely by INTECH and have not been independently verified. Simulations potentially allow investors to understand and evaluate INTECH's investment process by seeing how a strategy/product would have performed hypothetically during certain time periods. This material is provided for illustrative purposes only and should not be construed as an offer to sell, or the solicitation of offers to buy, or a recommendation for any security. It has been prepared for, and authorized for internal use by, designated institutional and professional investors and their consultants or for such other use as may be authorized by INTECH or its affiliates. This material and/or its contents are current at the time of writing and may not be reproduced or distributed in whole or in part, for any purpose, without the express written consent of INTECH. Although the information contained herein has been obtained from sources believed to be reliable, its accuracy and completeness cannot be guaranteed.

Simulated results are hypothetical, not real. They do not reflect the results or risks associated with actual trading or the actual performance of any account. Simulated performance results are prepared with the benefit of hindsight. As a result, the simulations may be theoretically changed from time to time to obtain results that are more favorable. Simulation results do not reflect material, economic, and market factors that may have impacted INTECH's trading or decision-making in the actual management of a client's account. Simulated returns should not be considered indicative of INTECH's mathematical process, as INTECH may not managed money during some of the periods shown or managed money for the particular strategy/product shown. The same INTECH mathematical optimization now in use in actual portfolio management was used in the simulations. Unlike traditional simulations that do involve fundamental estimates, INTECH's does not. In addition, the proprietary mathematical investment process used by INTECH may not achieve the desired results.

INTECH's simulated performance results have inherent limitations, including, among other things: 1) simulated performance results are prepared with the benefit of hindsight; 2) no price-based or volume-based deleted list; 3) no posted list; 4) index constituent changes done as a group at the beginning of the month (typically done once or twice a year based on the index changes); 5) simulated trades take place at the closing price (+40bps), while INTECH actually trades intra-day (historically, INTECH's domestic trading costs have been below the 40bps used in the simulations); and 6) six trading tranches are simulated with the average of the six tranches being reported as the result for the period.

Past performance of simulated data is no guarantee of future results. Therefore, no current or prospective client should assume that future performance will be profitable, or equal to either the simulated performance results shown or any corresponding historical index. In particular, simulations do not reflect actual trading in an account, so there is no guarantee that an actual account would have achieved the results shown. In fact, there may be differences between simulated performance results and the actual results subsequently achieved. In no circumstances should simulated returns be regarded as a representation, warranty, or prediction that investors will achieve or are likely to achieve the performance results displayed, or that investors will be able to avoid losses. Investing in securities involves risk, including the loss of principal or total loss of investment as well as fluctuation in value.

There are numerous other factors related to the markets in general or to the implementation of any specific trading strategy, which cannot be fully accounted for in the preparation of simulated performance results, all of which can adversely affect actual trading results. Any clients invested in the strategy/product may have experienced investment results during any relevant periods that were materially different from those portrayed in the simulations.

The simulated results include the reinvestment of all dividends, interest, and capital gains, but do not reflect deduction of investment advisory fees. Thus, simulated returns will be reduced by advisory fees and any other expenses that may be incurred in the management of an account.

An index is unmanaged, is not available for direct investment, and does not reflect the deduction of management fees or other expenses.

Data Source: The Center for Research in Security Prices Deciles are market value weighted benchmarks of common stock performance provided by the CRSP at the University of Chicago Graduate School of Business. The CRSP universe includes common stocks listed on the NYSE, AMEX, and the NASDAQ National Market excluding the following: preferred stocks, unit investment trusts, closed-end funds, real estate investment trusts, Americus Trusts, foreign stocks and American Depositary Receipts.