

Solutions for Managing Tail Risk

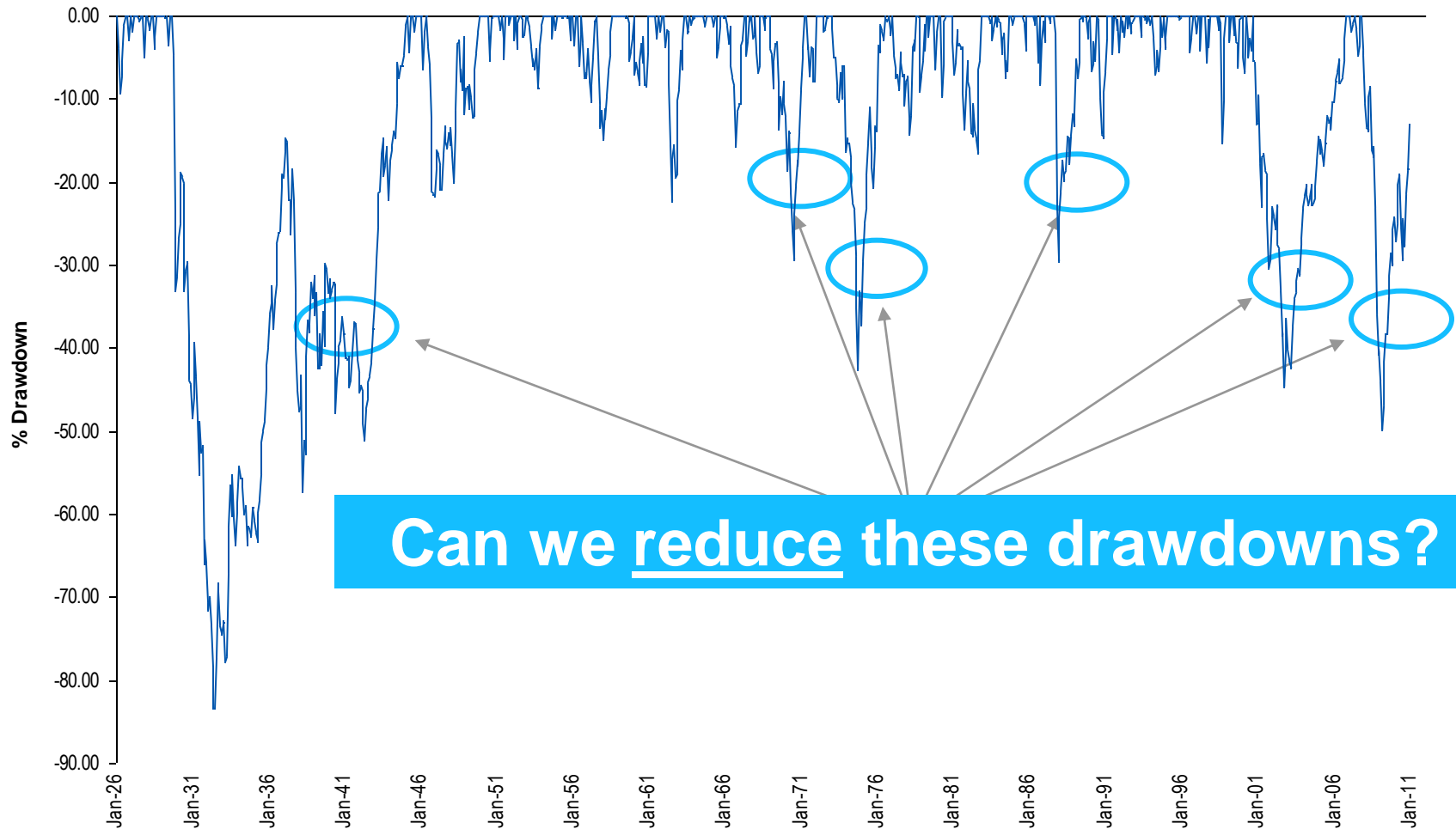
May 25, 2011

Lindsey Richardson, CAIA



Historical Drawdowns

S&P 500 Total Return Drawdown 1926 – December 2010



Can we reduce these drawdowns?

Source: Zephyr StyleADVISOR

Index returns are unmanaged and do not reflect the deduction of any fees or expenses. Index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income. Investors cannot invest directly in an index. Standard & Poor's S&P 500 Index is a registered trademark of Standard & Poor's Financial Services LLC.

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SSgA Alternatives

Investment Philosophy

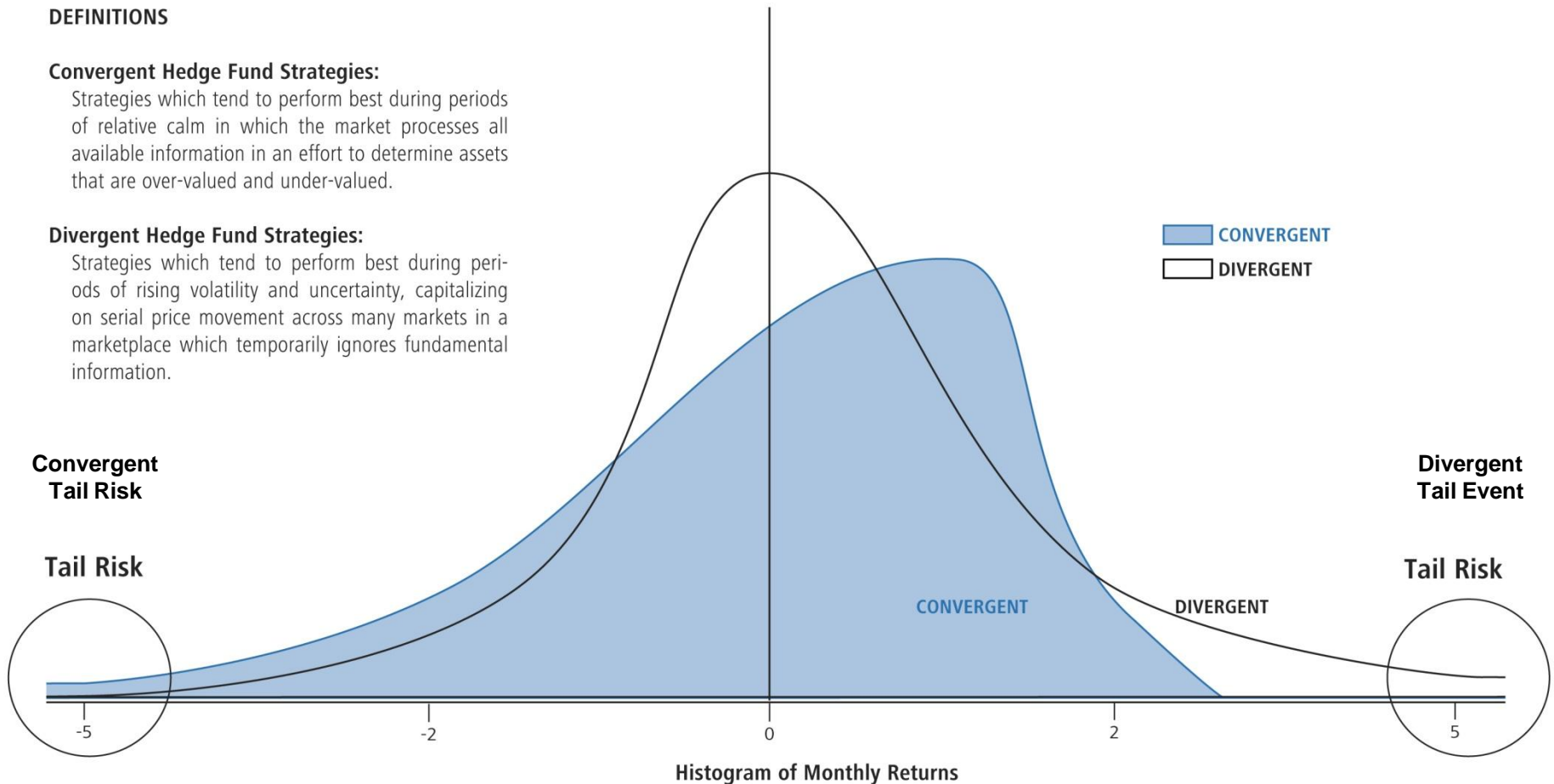
DEFINITIONS

Convergent Hedge Fund Strategies:

Strategies which tend to perform best during periods of relative calm in which the market processes all available information in an effort to determine assets that are over-valued and under-valued.

Divergent Hedge Fund Strategies:

Strategies which tend to perform best during periods of rising volatility and uncertainty, capitalizing on serial price movement across many markets in a marketplace which temporarily ignores fundamental information.



The information contained above is for illustrative purposes only.
Source: SSARIS Advisors, LLC Advisors, LLC

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Key Risks

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- De-leveraging
- Inflation
- Deflation
- Unforeseen Events

Key Risks

Implications

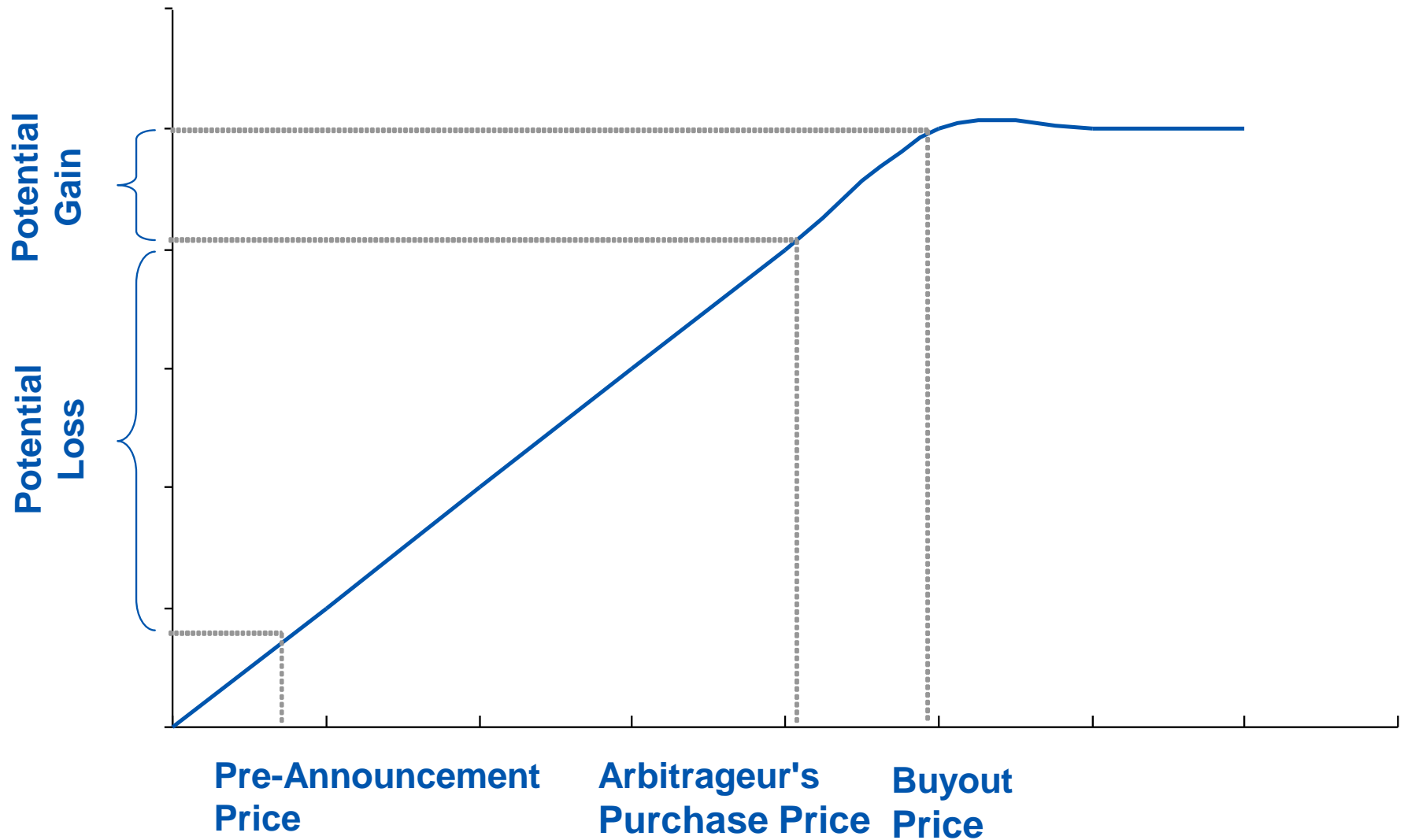
- Avoid Left Tail Events
- Construct Balanced Portfolios

Convergence

Merger Arbitrage Payoff

- Maximum potential loss is greater than maximum potential gain
- Likelihood of gain is greater than the likelihood of loss
- Payoff stream resembles:
short put option
- Key systematic risk: **VOLATILITY**

Convergence



Source: SSgA.
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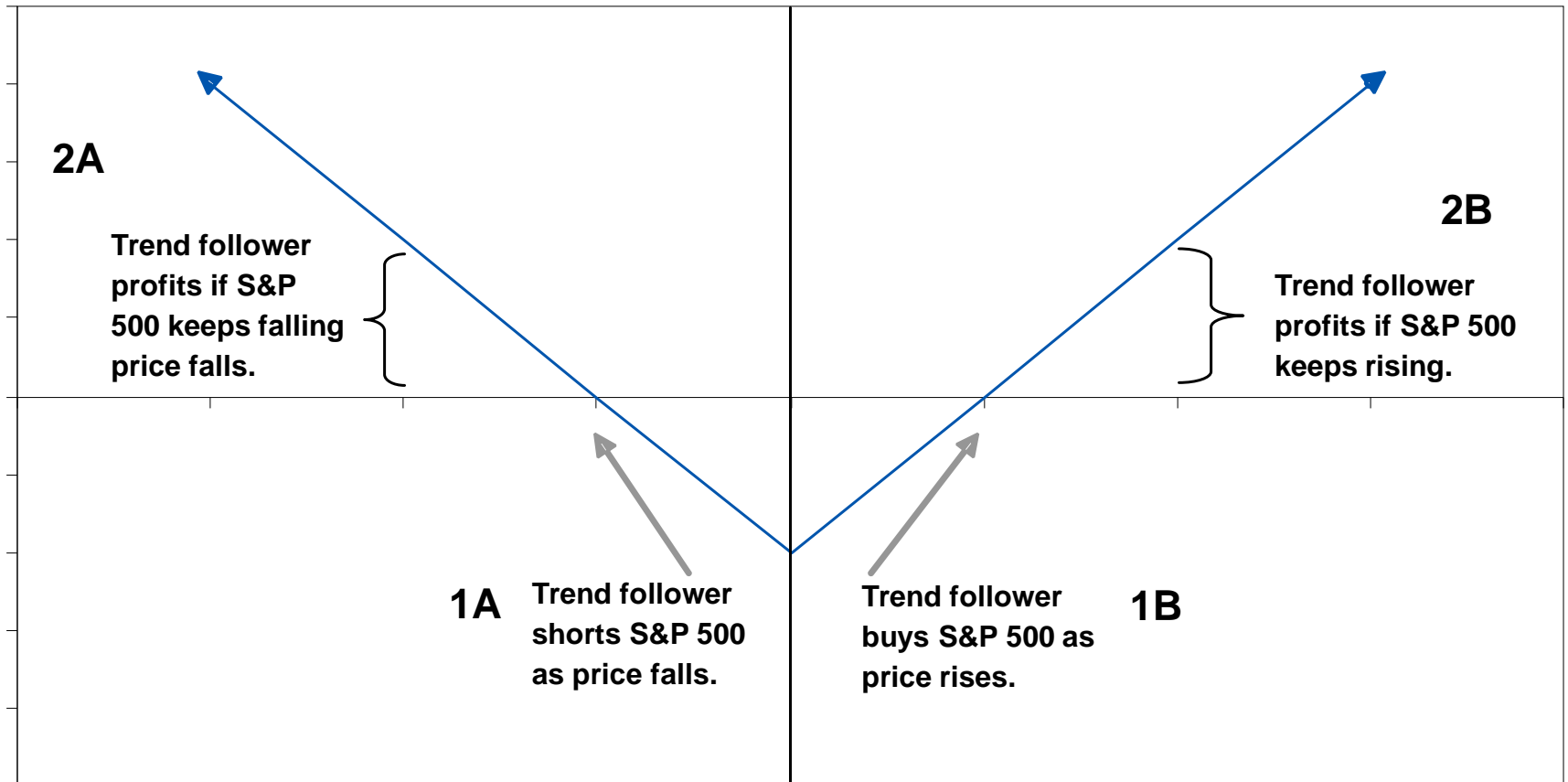
Divergence

Managed Futures Payoff

- Profit if upward trend continues
- Profit if downward trend continues
- Payoff stream resembles:
long straddle
- Key systematic risk:
FALLING VOLATILITY

Divergence

Trend Following Payout Profile Resembles a Long Straddle



Source: SSgA.

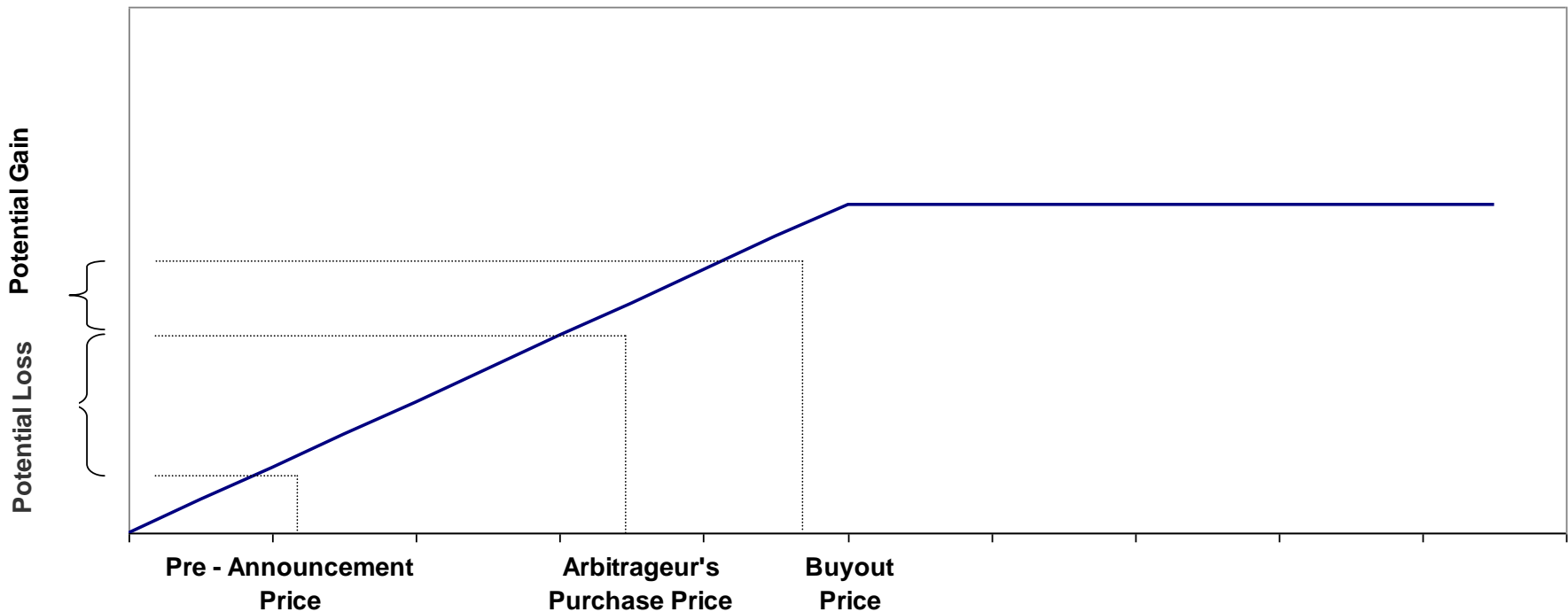
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Combining Strategies

$$A + B = C$$

A Merger Arbitrage Payoff Profile Resembles a Short Put



Source: SSgA.

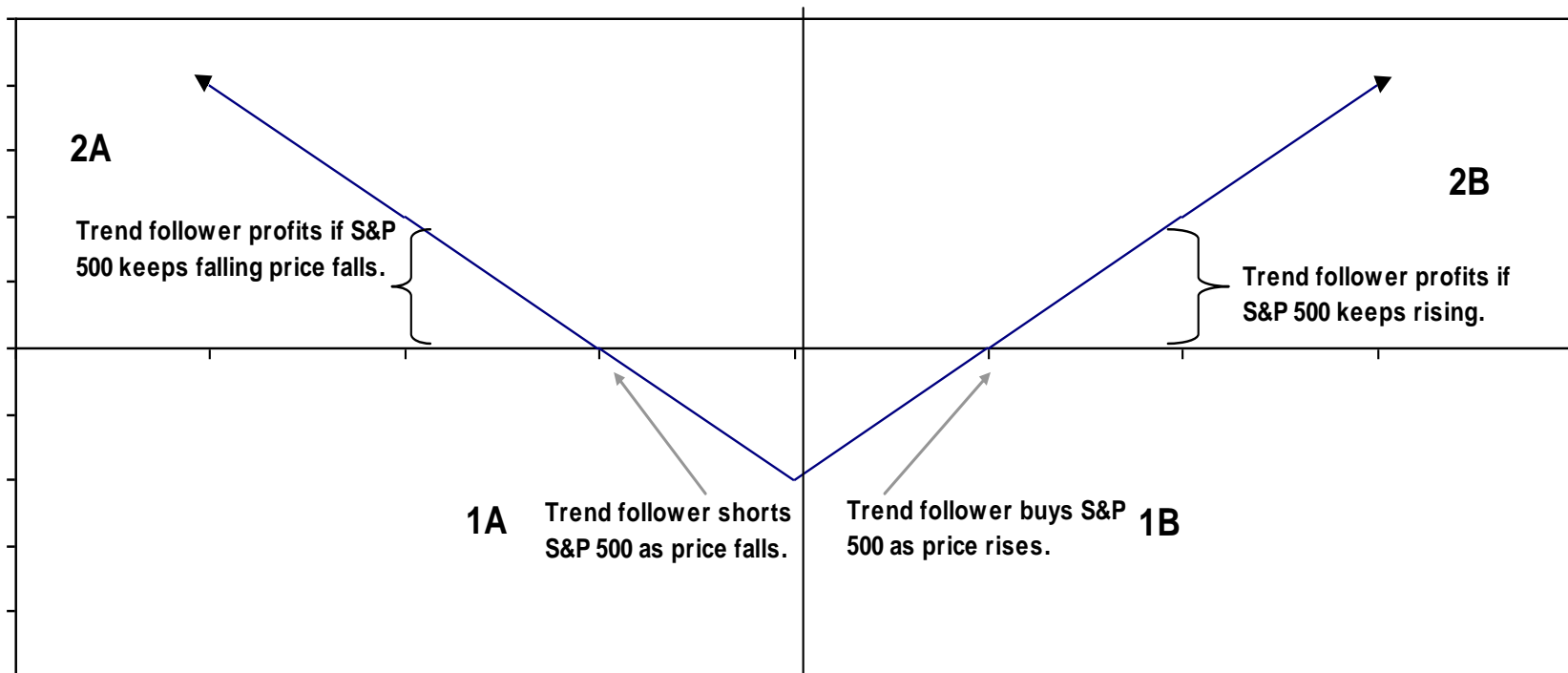
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Combining Strategies

$$A + B = C$$

B Trend Following Payout Profile Resembles a Long Straddle



Source: SSgA.

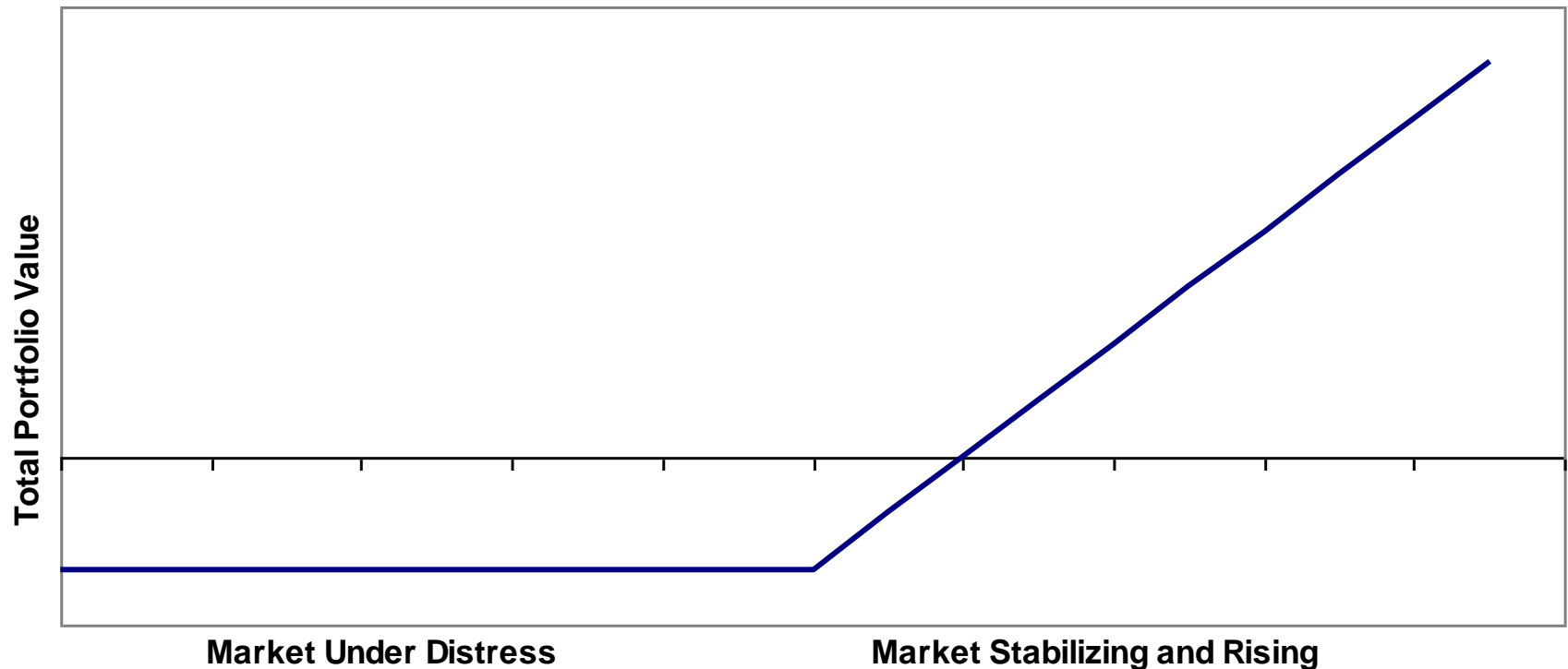
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Combining Strategies

$$A + B = C$$

C Combining Strategies Resembles a Long Call



Source: SSgA.

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Solutions

- Divergence:
 - Seeks to Lower overall volatility while mitigating left tail risk
 - **Managed futures** strategies are the purest form of divergence
- Convergence:
 - Seeks to reduce equity beta exposure
 - **Minimum volatility** or lowest risk portfolio
- Combining convergence and divergence:
 - Potential for lowering of overall tail risk
 - **Multi-Strategy**

Solutions

- Combining convergence and divergence:
 - Potential for lowering of overall tail risk
 - **Multi-Strategy**

Summary

We believe:

1. Managing Tail Risk allows you the potential to achieve growth
2. Understanding strategy return distributions is key
3. Divergence allows for upside potential during periods of distress

The views expressed in this material are the views of the Alternative Investments Team and are subject to change based on market and other conditions. The information provided does not constitute investment advice and it should not be relied on as such. This document contains certain statements that may be deemed forward-looking statements. Please note that any such statements are not guarantees of any future performance and actual results or developments may differ materially from those projected.

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Summary

4. Convergence can potentially earn a premium in most years
5. Balancing convergence and divergence allows for potential growth with low tail risk

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Appendix A: Biography

Biography



Lindsey A. Richardson, CAIA

Lindsey is an alternatives specialist on the institutional sales team at SSgA in Boston, specializing in alternative investments. She rejoined the company in 2010 from DB Advisors, having previously worked for SSgA from 1998 as a product specialist, first in the global fundamental and later on the alternatives teams.

Prior to this she worked in marketing and portfolio management positions at Barclays Global Investors, NY; Lazard Asset Management, NY; and NatWest Investment Management, London.

Lindsey holds MA and M.Litt degrees from Oxford University, England, is a Chartered Alternative Investment Analyst and holds series 3 and 17 licenses.