
30 Minutes to a Better Portfolio

Portfolio Construction in an Age of High Correlations



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Role of a Portfolio Manager

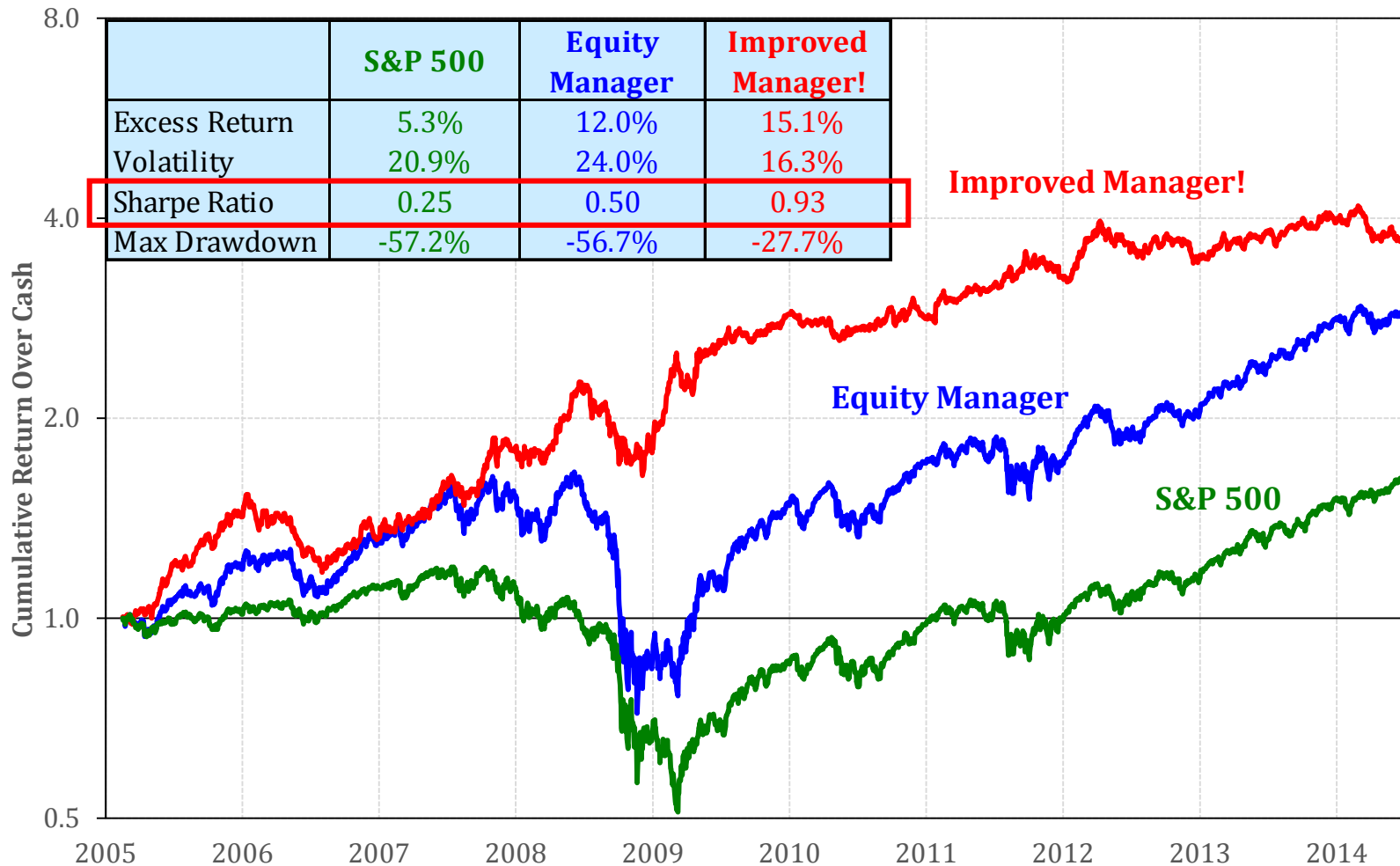
- A portfolio manager has two jobs:
 1. Alpha creation
 2. Portfolio construction

- In our opinion, most managers focus too heavily on alpha generation at the expense of constructing a truly diversified portfolio

- We believe that the performance of many portfolios can be improved by following two simple portfolio construction rules...

If It Ain't Broke, Fix It!

Simple portfolio construction techniques can vastly improve performance



As of June 30, 2014

Source: SEC, Bloomberg 3

Maximizing Sharpe Ratio

- A primary objective of investment management is to maximize risk-adjusted returns, commonly measured by Sharpe Ratio
- If your objective is to maximize Sharpe Ratio, you need only follow two simple rules:

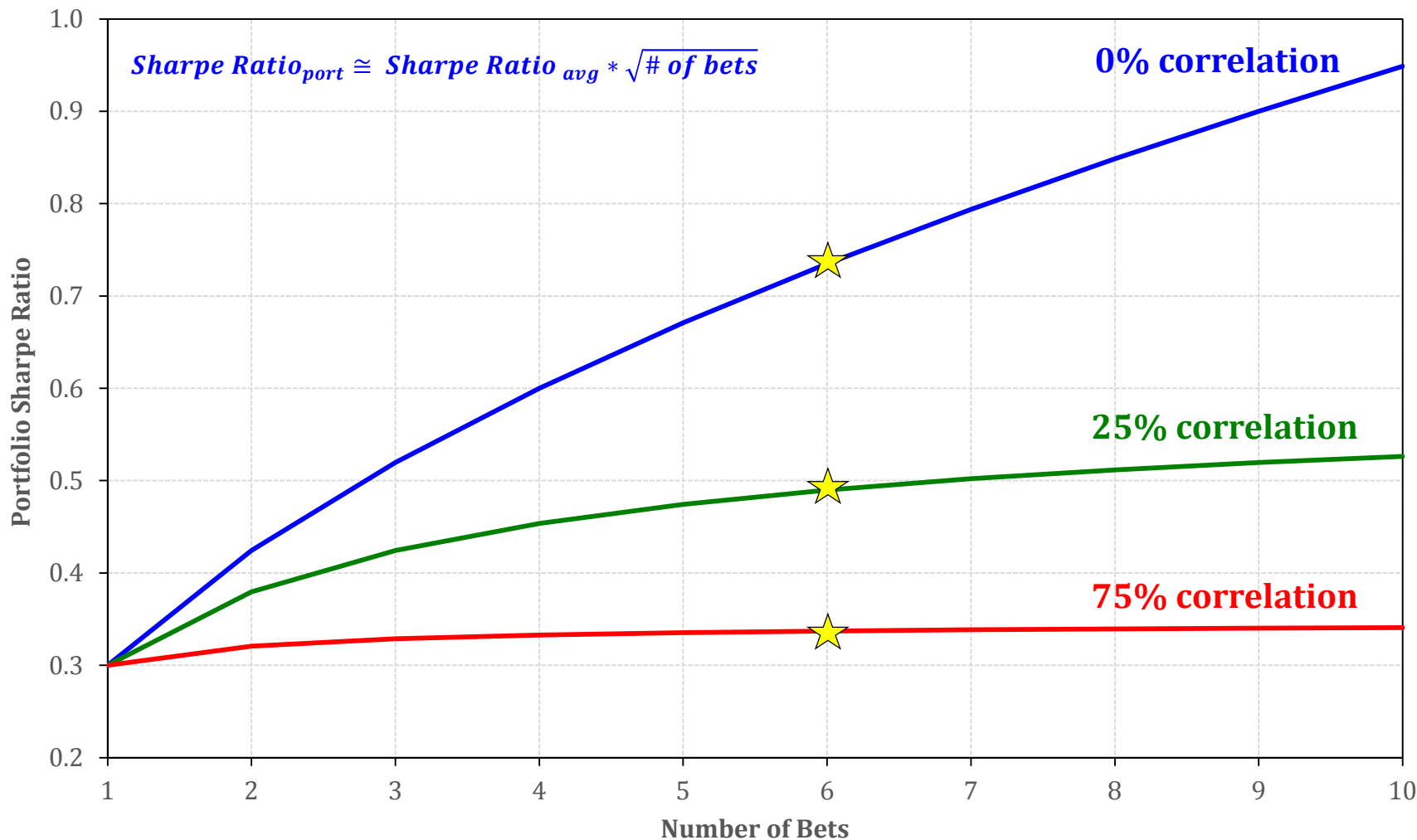
1 Find many independent bets

2 Bet in proportion to expected Sharpe Ratio

- Any other approach will lead to a suboptimal Sharpe Ratio

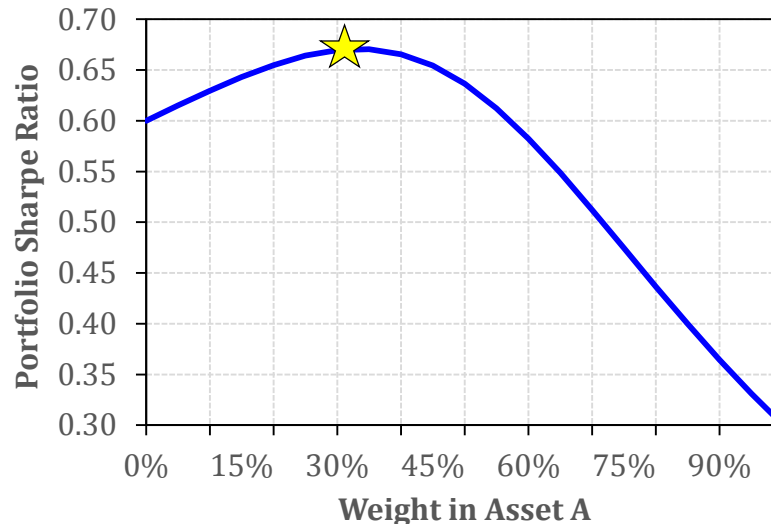
Find Many *Different* Return Streams

Holding many assets does not guarantee a diversified portfolio



Bet in Proportion to Sharpe Ratio

- Two asset example:
 - **Asset A:** 0.3 Sharpe Ratio, 10% volatility
 - **Asset B:** 0.6 Sharpe Ratio, 10% volatility
- How does varying the weight of Assets A and B affect portfolio Sharpe Ratio?



- Since Asset B has twice the Sharpe Ratio of Asset A, portfolio Sharpe Ratio is maximized when Asset B has twice the weight as Asset A (67% vs. 33%)

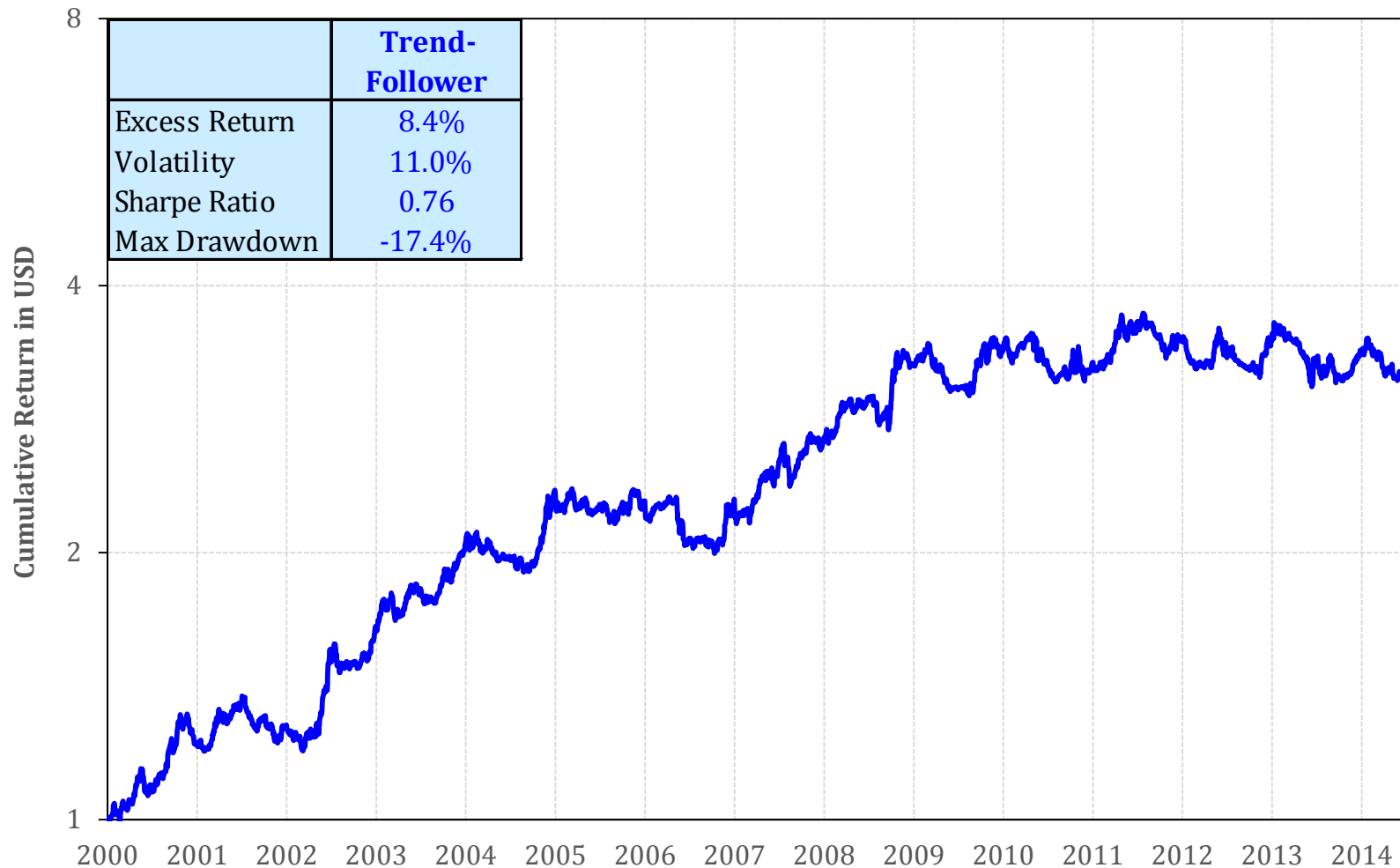
Trend-Following in FX

Trend-Following in FX

- Let's build a simple algorithm to trend-follow in FX
 - **Signal:** If 1-year change in spot FX is positive, go long. Otherwise, go short. Normalize by trailing volatility
 - **Rebalancing:** Hold for one month, rebalancing daily
 - **Weight:** Target constant 10% volatility

- We will run this model on 22 currencies against the US dollar
 - EUR, GBP, CHF, SEK, NOK, PLN, CZK, HUF, AUD, NZD, CAD, BRL, CLP, MXN, ZAR, IDR, INR, KRW, PHP, THB, TWD, and JPY

Trend-Follower Returns



As of June 30, 2014

Source: Bloomberg 9

What Explains the Trend-Follower's Returns?

- The trend-follower's bets can be decomposed into two categories:

1. Regional

- Europe
- Commodity
- Emerging
- Japan
- e.g., Net position in commodity currencies vs. US dollar

2. Intra-Region

- Currencies vs. their respective regions
- e.g., NZD vs. Commodity FX

Europe: EUR, GBP, CHF, SEK, NOK, PLN, CZK, HUF

Commodity: AUD, NZD, CAD, BRL, CLP, MXN, ZAR

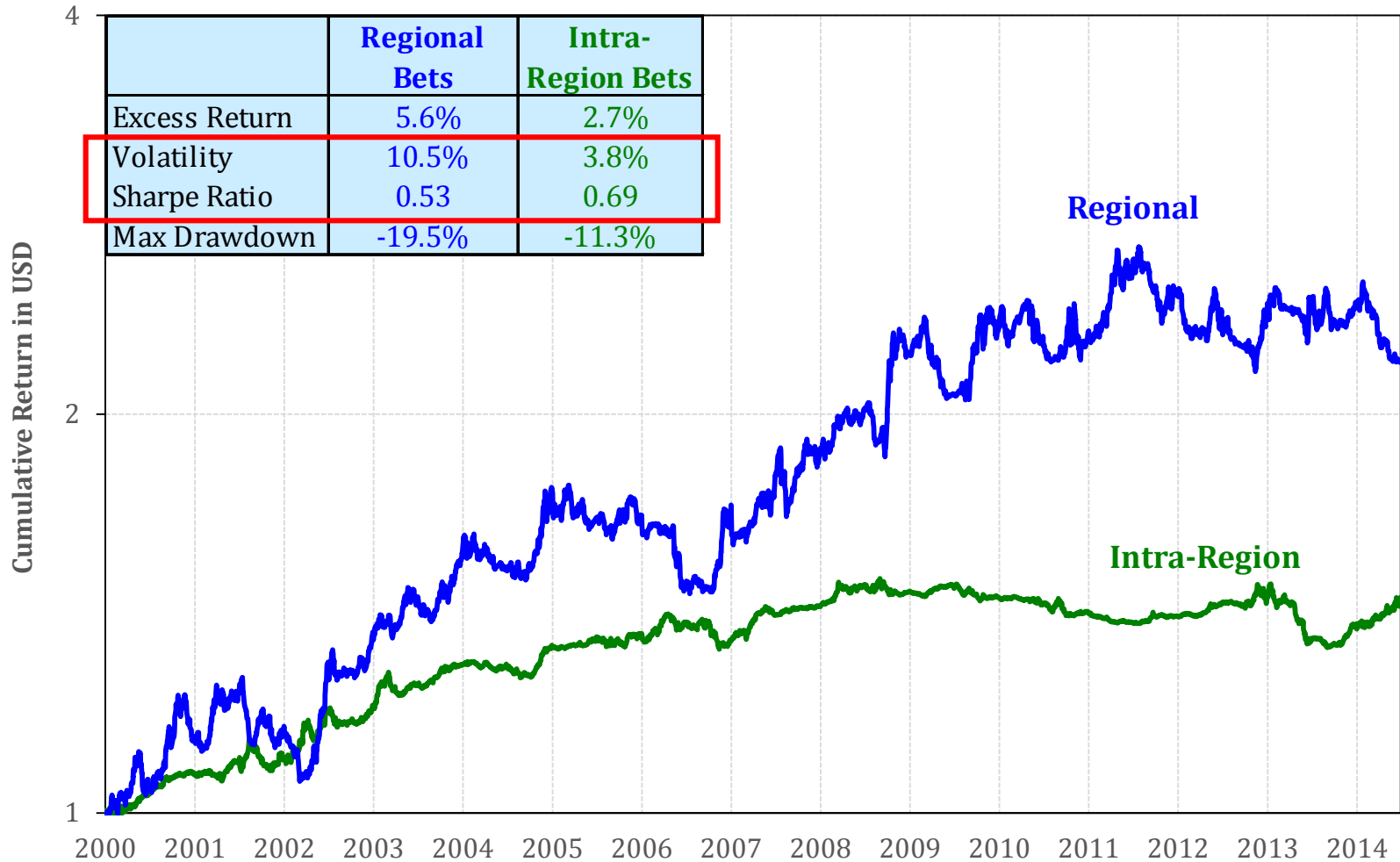
Emerging: IDR, INR, KRW, PHP, THB, TWD

Japan: JPY

All regional baskets are equal-weighted and denominated in USD



Performance of Each Driver



As of June 30, 2014

Source: Bloomberg 11

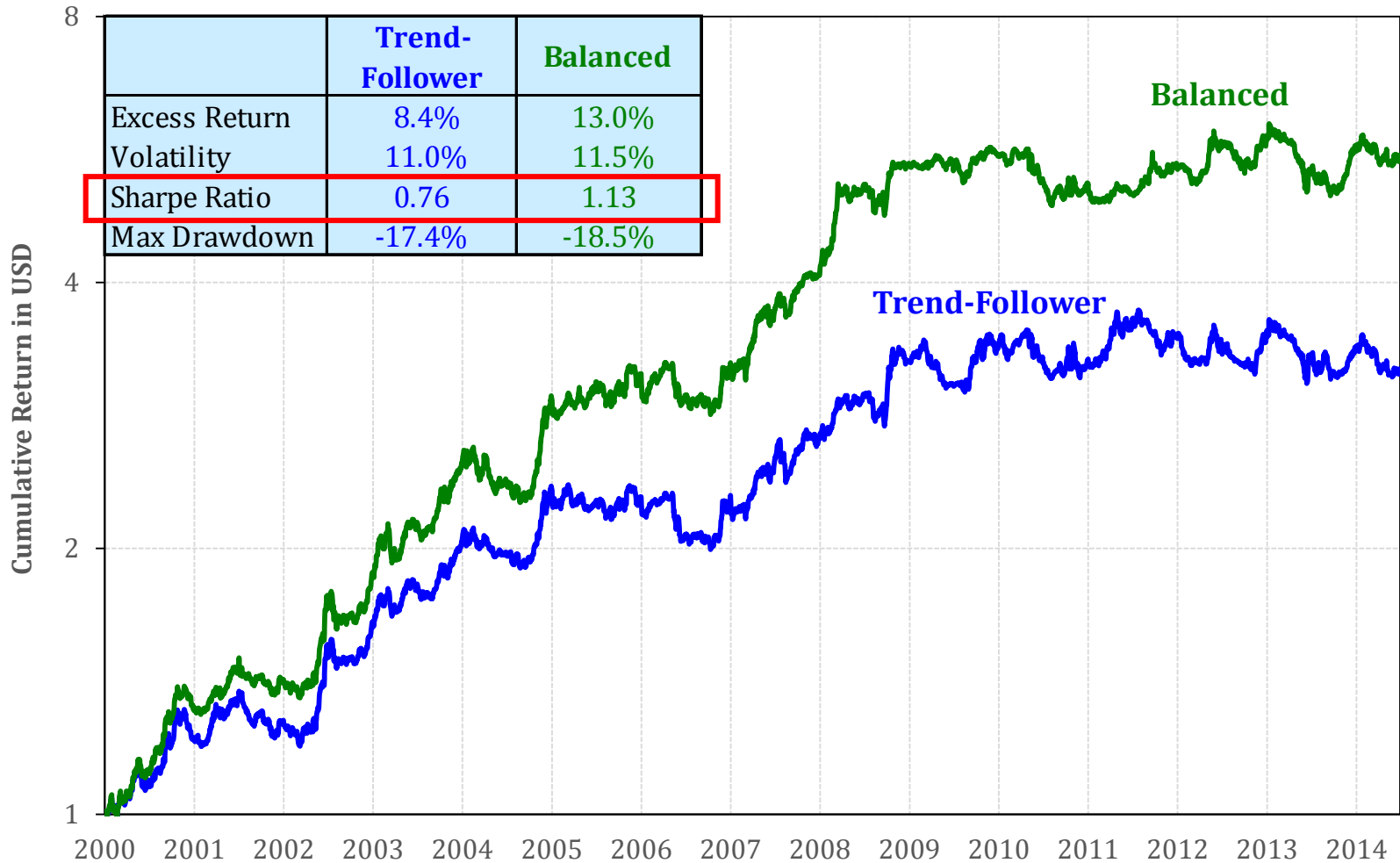
Balancing Weights

- Decomposing performance reveals a misalignment in betting:
 - The strategy takes significantly more risk (volatility) in **regional bets (10.5%)** than **intra-region bets (3.8%)**
 - However, the Sharpe Ratio of the **intra-region bets (0.69)** is at least as high as that of the **regional bets (0.53)**
- Without a prior to the contrary, we should assume (at least) equal ex-ante Sharpe Ratios of regional and intra-region bets
- Taking so much more risk in regional bets than intra-region bets violates the second rule of portfolio construction

2 Bet in proportion to expected
Sharpe Ratio

- Let's redesign the strategy so that it targets the same risk for regional and intra-region bets

Unsurprisingly, Balancing Risk Improves Performance



As of June 30, 2014

Source: Bloomberg 13

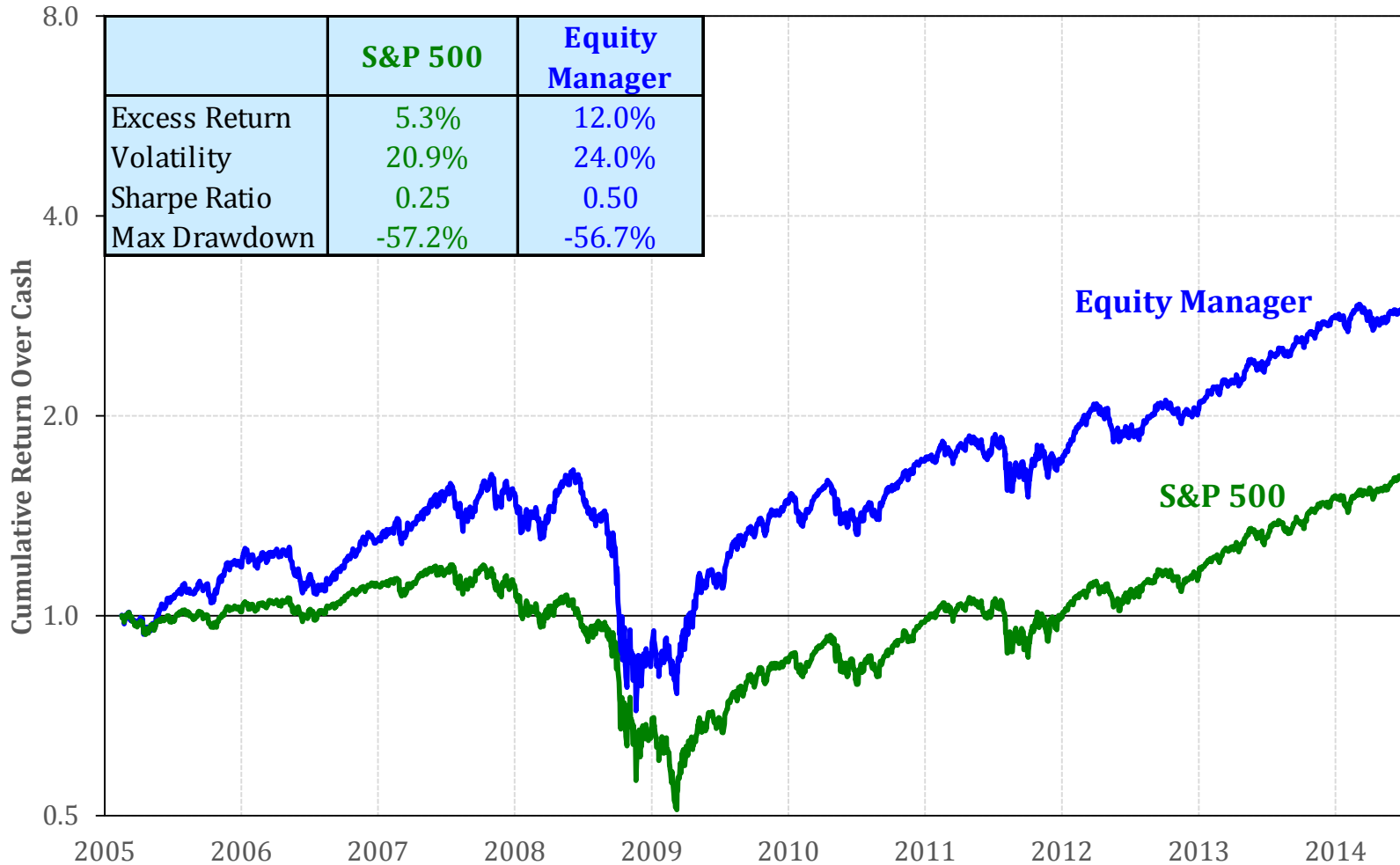
How to Improve Our Equity Manager

Who is the Equity Manager?

- The Security and Exchange Commission requires many large US institutional investment managers to file Form 13Fs, disclosing information on their holdings of various equity securities
- Our manager is an attempt at replicating a well-known Tiger Cub, created by mimicking the positions in its quarterly 13F filings
- The strategy copies the manager's long equity positions from its 13F filings, rebalancing every quarter.



Performance of the 13F Strategy



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Source: SEC, Bloomberg 16

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Decomposing the Strategy's Returns

- What drives the return to this strategy?

1. Market exposure

- 100% S&P 500

2. Sector allocation

- Sector ETFs – 100% S&P 500

- e.g., Technology vs. S&P 500

3. Stock alpha

- Stock exposure – Sector ETFs

- e.g., Microsoft vs. Technology



Performance of Each Driver



As of June 30, 2014

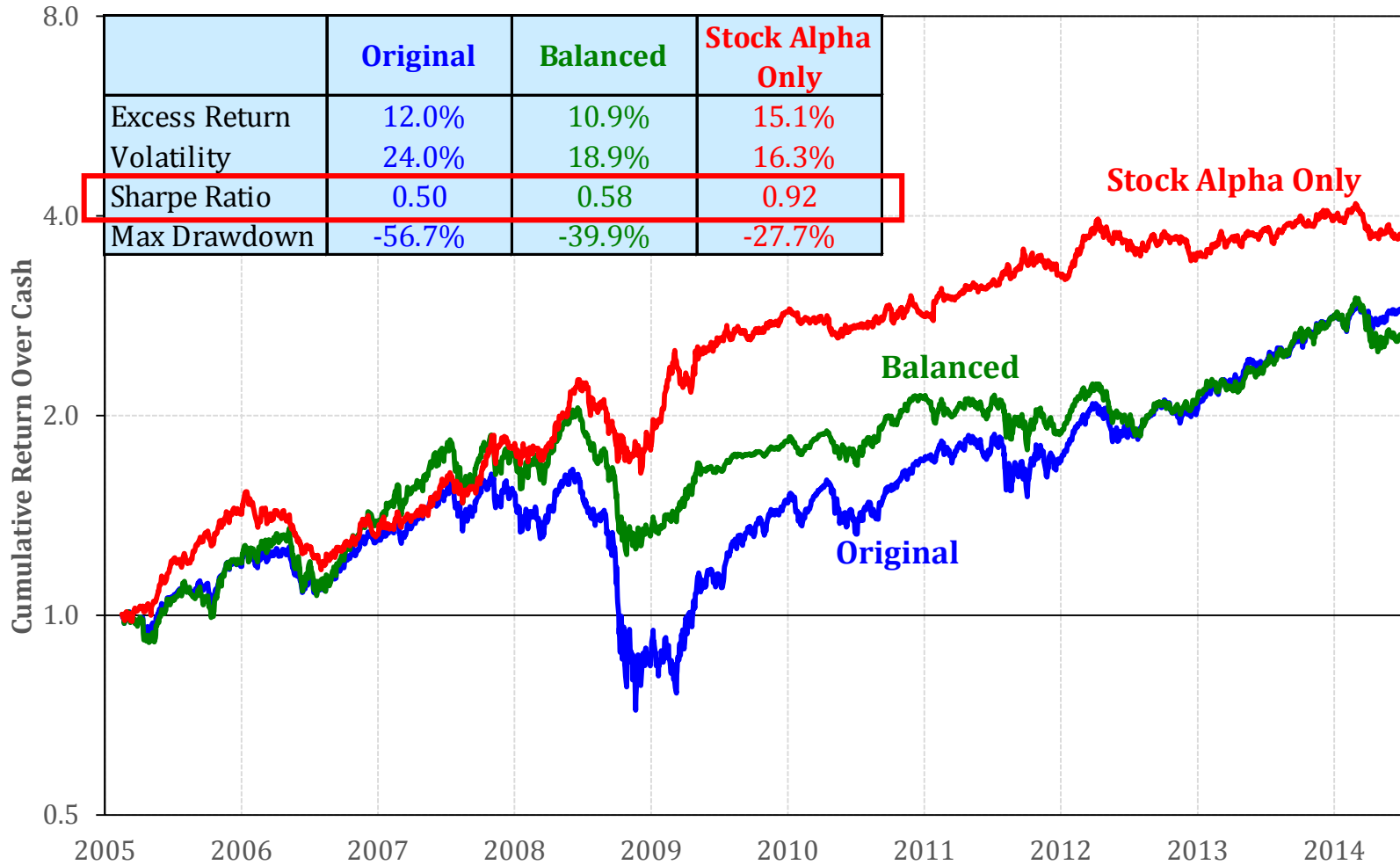
Source: SEC, Bloomberg 18

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Realigning Bet Weights

- Decomposing performance reveals a misalignment in betting:
 - The strategy takes significantly more risk (volatility) in **market exposure (20.9%)** than **sector (4.9%)** and **stock (8.2%)** bets
 - However, the Sharpe Ratio of the **stock alpha (0.93)** is significantly higher than that of **market exposure (0.25)**
- Let's propose two strategies to improve the betting scheme:
 - **Balanced strategy:**
 - Assume no ex-ante difference in market, sector, and stock Sharpe Ratio
 - Allocate equal risk (10% volatility) to each of the three return streams
 - **Stock alpha only:**
 - Assume manager only has skill in stock bets
 - Hedge each stocks' exposure using its respective sector ETF
 - Apply 2x leverage

New Weights Improve Performance



As of June 30, 2014

Source: SEC, Bloomberg 20

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Relative Value Bets Benefit From High Correlation

- Today's high correlation regime is problematic for many investors
 - High correlations reduce the number of effective bets that directional traders can make (e.g., risk on/risk off)
- However, high correlations are actually beneficial for relative value traders
 - High correlations reduce the volatility of pair trades (e.g., AAPL vs. Tech)
- The steady increase in correlations over the last several years makes the adoption of relative value more important
- We believe that it is important for managers to flexibly allocate between directional and RV trades depending on the correlation environment

Kaleidoscope Capital

- We pay careful attention to both portfolio construction and alpha generation
- Our goal is to create as many independent bets as possible by:
 - Leveraging both directional and relative bets
 - Trading across stocks, bonds, currencies, commodities, and volatility
- In addition to creating breadth through long-short and multi-asset, we have access to a third dimension of diversification – time
- Predicting the future is hard. Small portfolio construction improvements can lead to outsized gains in performance.