

10x10 Portfolio Process 23-Year Daily Simulation Results

1998–2021

Keller Partners
February 2022



Introduction

The Keller Partners 10x10 Portfolio is an active, disciplined approach to managing investment-grade equity portfolios

- Portfolios are highly liquid and scalable
- Process is 100% rules-based, and can operate autonomously
- Long-term return patterns are aligned with the risk tolerance of the final client
- Attractive Sharpe and Sortino ratios

Cornerstones of The Process

- Algorithmic evaluation of intermediate-term performance potential (12-18 month horizon), both long and short
- Disciplined management of portfolio volatility and drawdown

Portfolio Construction

- Bottom-up portfolio selection — no diversification constraints
Position-based risk management
- Prototype portfolios are structured with ten sleeves of 9.5% each and a 5% allocation to cash. Whenever insufficient issues qualify for ownership, unused sleeves hold cash
- Number of portfolio positions determined by client —
Eligible securities list specified by client

Mechanics

- Engine: MS Excel / Data: ICE, Dow Jones, CBOE
- Long-term simulations: Python 3
- Eligible securities universe: defined by manager
- Keller Partners large-cap universe (KP-120) represents 60%+ of market cap of the US equity market

This Chart Book

Charts in this Report illustrate a two-decade portfolio simulation, sub-divided into two-year segments. This period includes two extensive bear market episodes with life-altering drawdowns (2001-02, and 2007-08), as well as many unconstrained “risk-on” bull environments. It also included lesser, but still attention-getting, downside events (e.g., 1998, 2011, 2016, 2018, and 2020) where the presence of a risk management protocol became important

The portfolio selection and construction process remained constant throughout — applying the same investment universe, algorithms and parameters we use today

Start Date and Rebalancing. The simulated portfolios were evaluated daily, based on closing prices and other metrics. We began these simulations at year-end 1997 and took them forward two years at a time, in effect re-starting the portfolio formally every two years

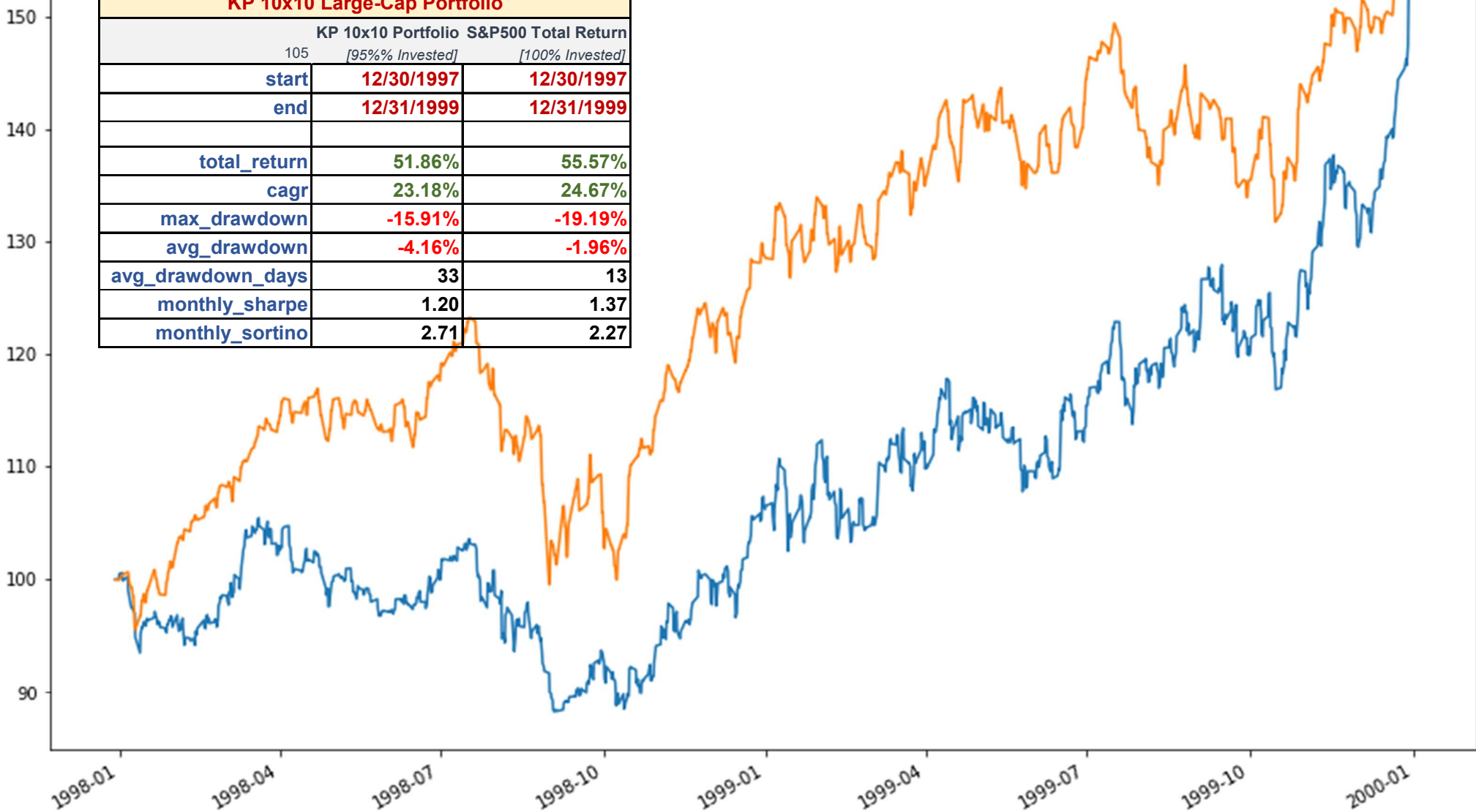
The simulation process assumes daily rebalancing. This understates the impact of winning positions, as discussed in Performance Notes at the end

Daily Review. The portfolio was priced every day at the close, identifying issues (if any) that needed to be replaced. Required sales and purchases were assumed to take place the following day at the market opening

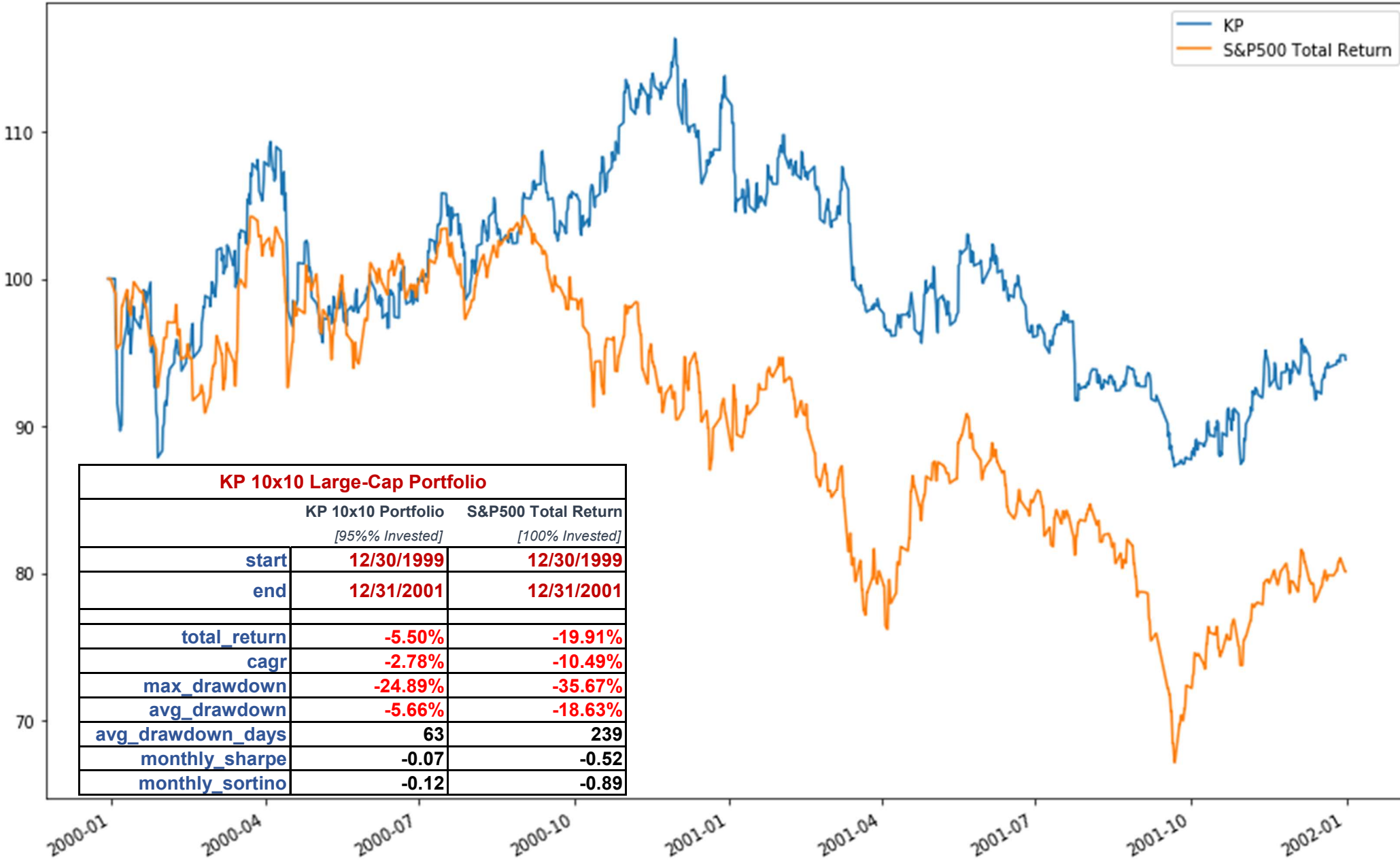


— KP
— S&P500 Total Return

KP 10x10 Large-Cap Portfolio		
	KP 10x10 Portfolio	S&P500 Total Return
	105	[95%% Invested]
		[100% Invested]
start	12/30/1997	12/30/1997
end	12/31/1999	12/31/1999
total_return	51.86%	55.57%
cagr	23.18%	24.67%
max_drawdown	-15.91%	-19.19%
avg_drawdown	-4.16%	-1.96%
avg_drawdown_days	33	13
monthly_sharpe	1.20	1.37
monthly_sortino	2.71	2.27

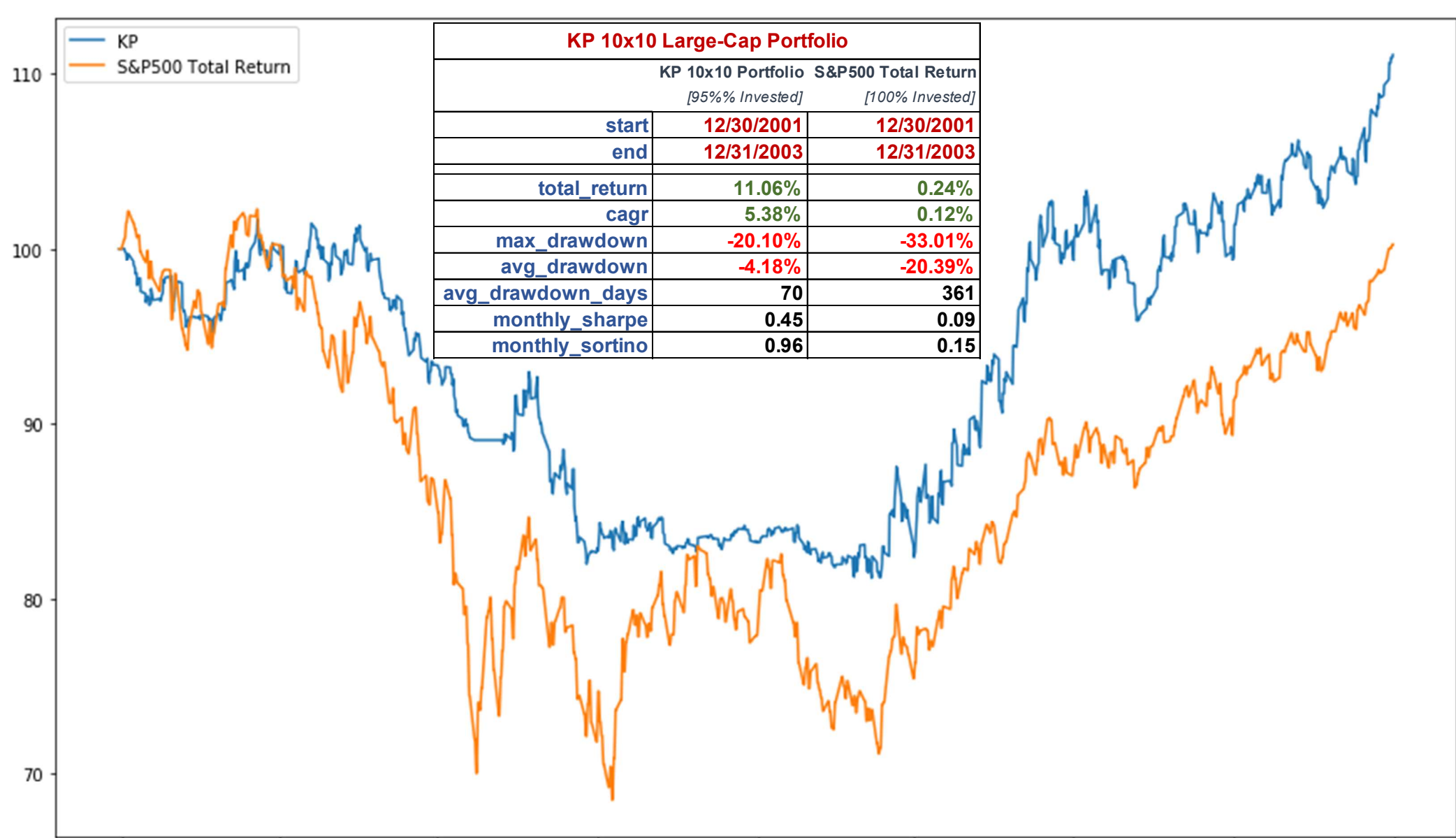


1998-1999



KP 10x10 Large-Cap Portfolio		
	KP 10x10 Portfolio	S&P500 Total Return
	<i>[95% Invested]</i>	<i>[100% Invested]</i>
start	12/30/1999	12/30/1999
end	12/31/2001	12/31/2001
total_return	-5.50%	-19.91%
cagr	-2.78%	-10.49%
max_drawdown	-24.89%	-35.67%
avg_drawdown	-5.66%	-18.63%
avg_drawdown_days	63	239
monthly_sharpe	-0.07	-0.52
monthly_sortino	-0.12	-0.89

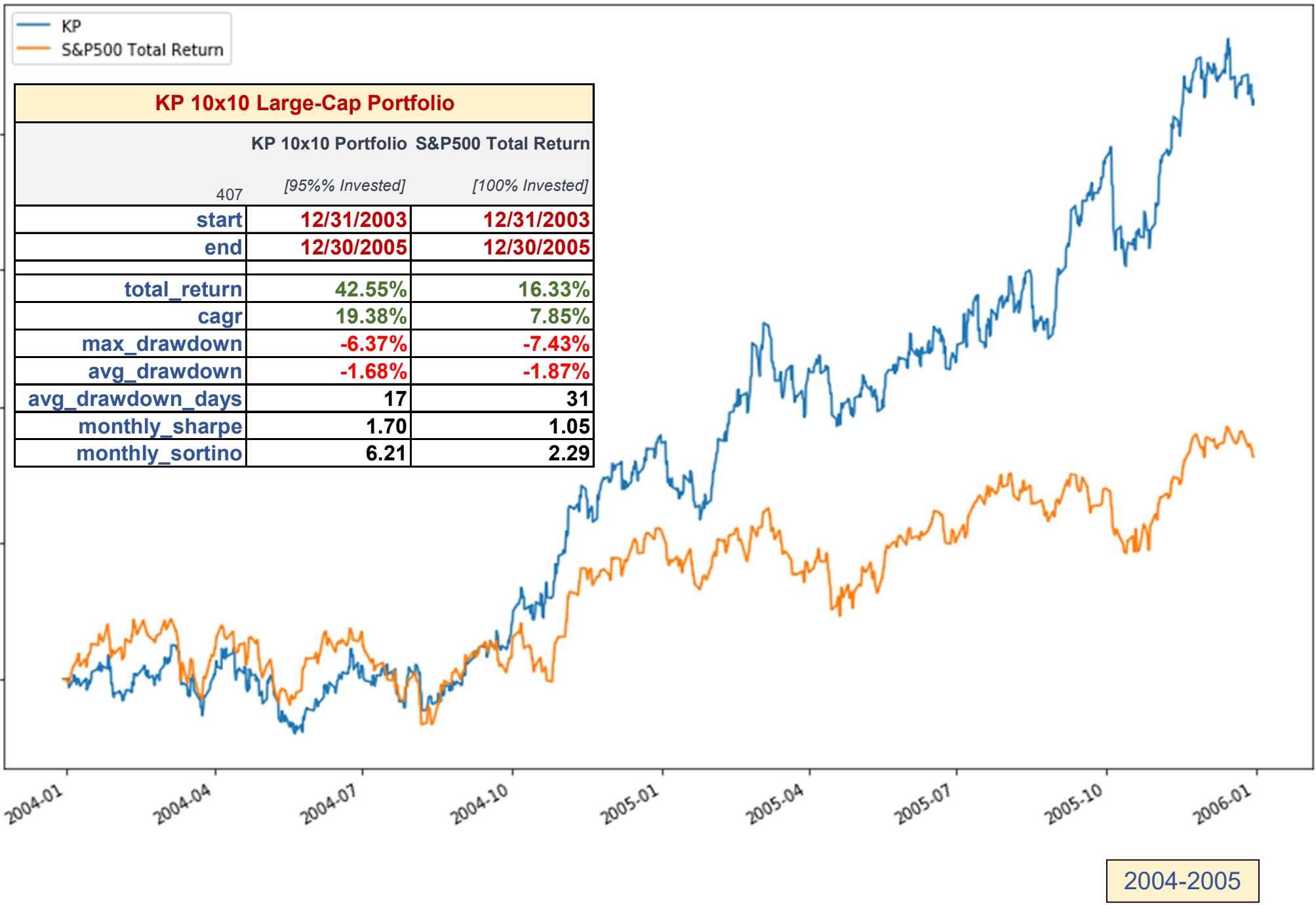
2000-2001

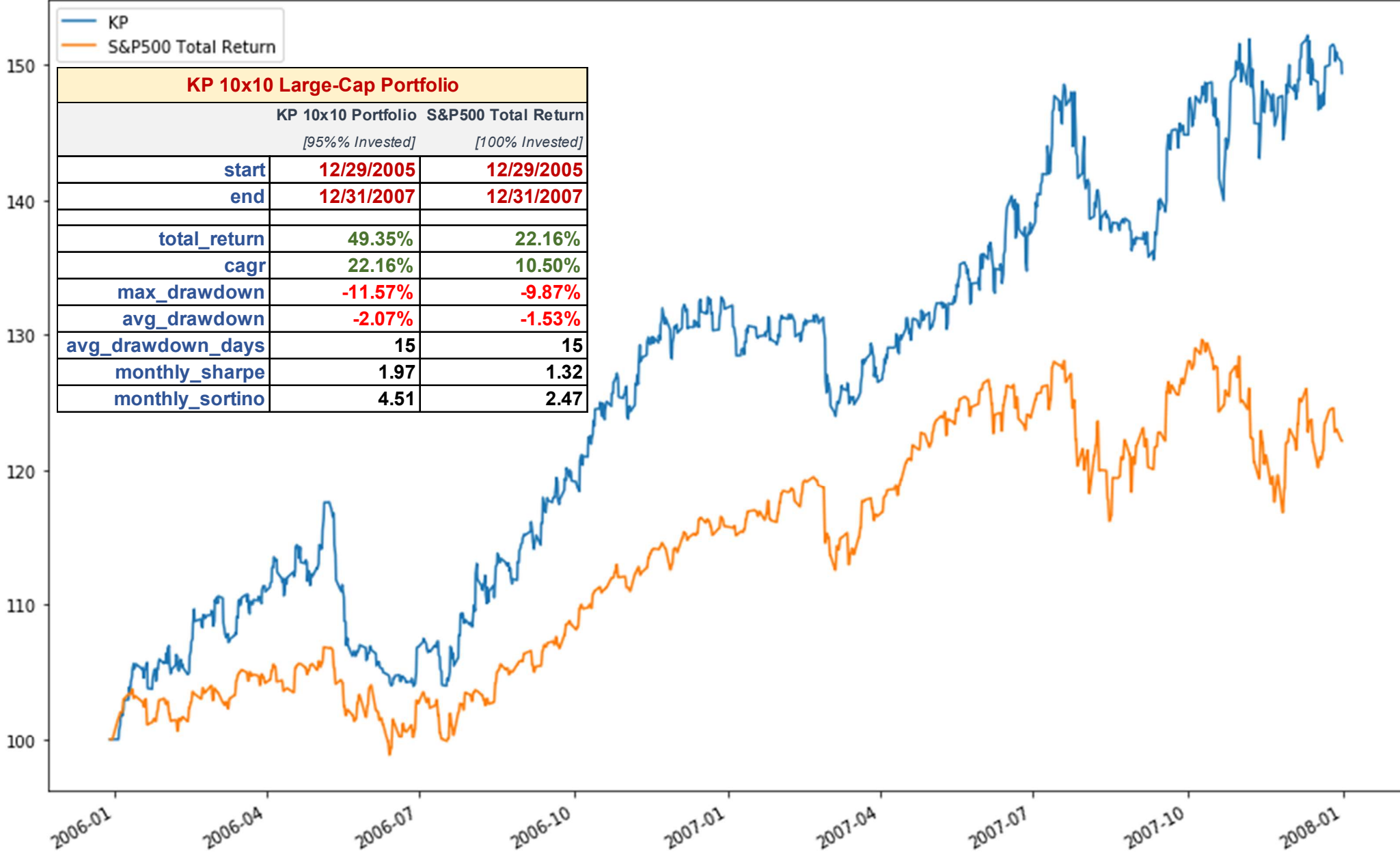


KP 10x10 Large-Cap Portfolio		
	KP 10x10 Portfolio	S&P500 Total Return
	<i>[95%% Invested]</i>	<i>[100% Invested]</i>
start	12/30/2001	12/30/2001
end	12/31/2003	12/31/2003
total_return	11.06%	0.24%
cagr	5.38%	0.12%
max_drawdown	-20.10%	-33.01%
avg_drawdown	-4.18%	-20.39%
avg_drawdown_days	70	361
monthly_sharpe	0.45	0.09
monthly_sortino	0.96	0.15

2002-01 2002-04 2002-07 2002-10 2003-01 2003-04 2003-07 2003-10 2004-01

2002-2003

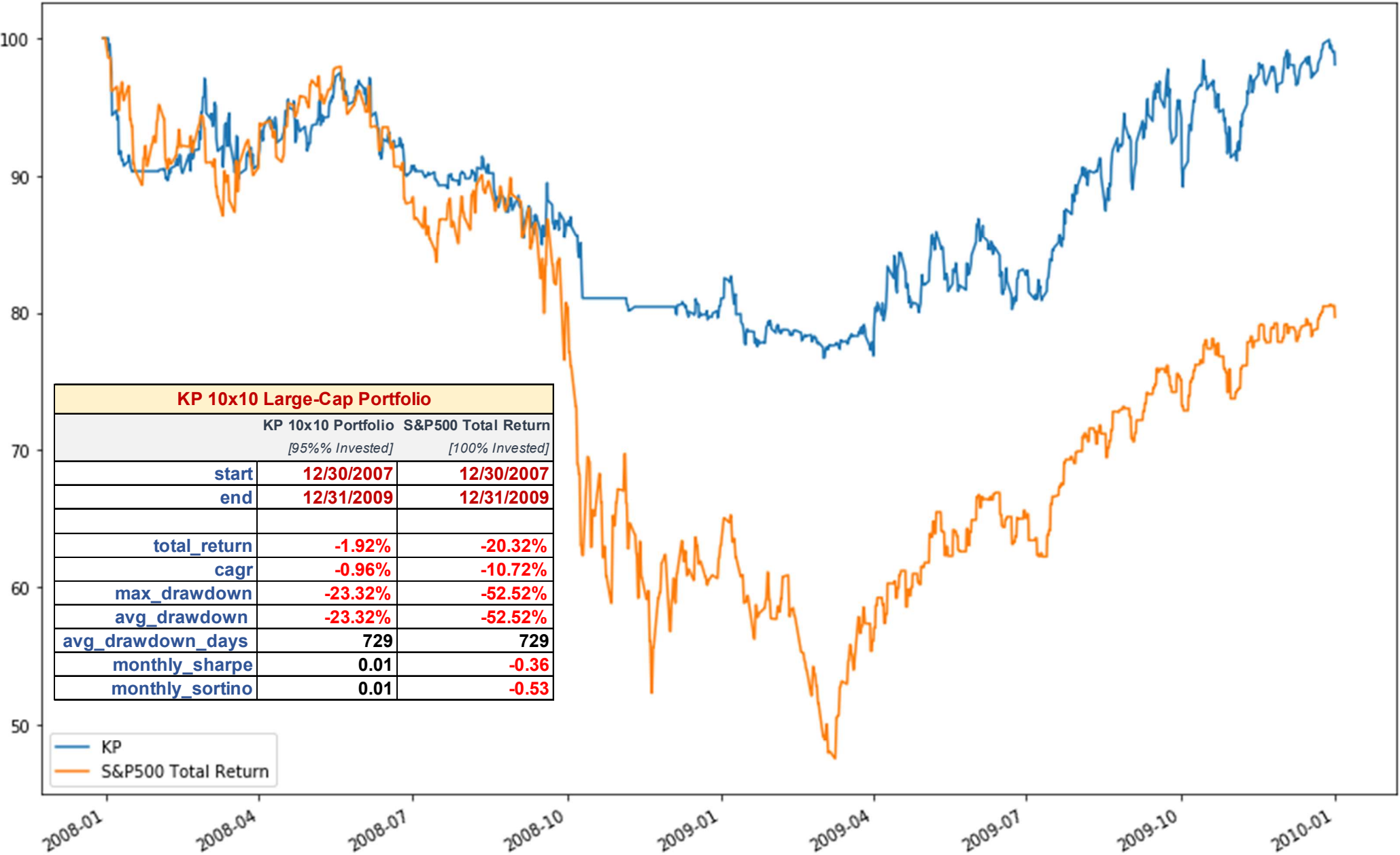




— KP
— S&P500 Total Return

KP 10x10 Large-Cap Portfolio		
	KP 10x10 Portfolio	S&P500 Total Return
	<i>[95% Invested]</i>	<i>[100% Invested]</i>
start	12/29/2005	12/29/2005
end	12/31/2007	12/31/2007
total_return	49.35%	22.16%
cagr	22.16%	10.50%
max_drawdown	-11.57%	-9.87%
avg_drawdown	-2.07%	-1.53%
avg_drawdown_days	15	15
monthly_sharpe	1.97	1.32
monthly_sortino	4.51	2.47

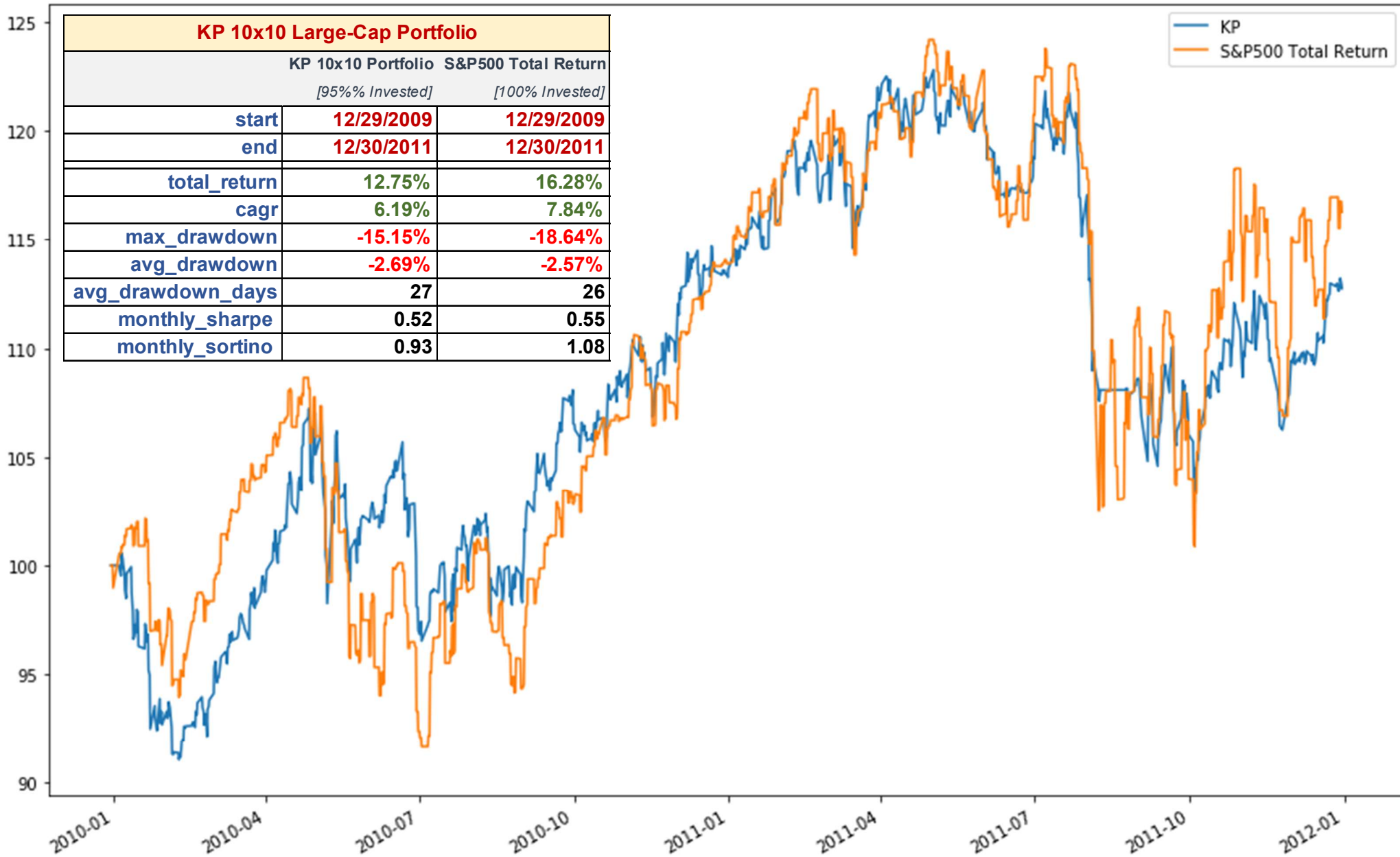
2006-2007



KP 10x10 Large-Cap Portfolio		
	KP 10x10 Portfolio	S&P500 Total Return
	<i>[95% Invested]</i>	<i>[100% Invested]</i>
start	12/30/2007	12/30/2007
end	12/31/2009	12/31/2009
total_return	-1.92%	-20.32%
cagr	-0.96%	-10.72%
max_drawdown	-23.32%	-52.52%
avg_drawdown	-23.32%	-52.52%
avg_drawdown_days	729	729
monthly_sharpe	0.01	-0.36
monthly_sortino	0.01	-0.53

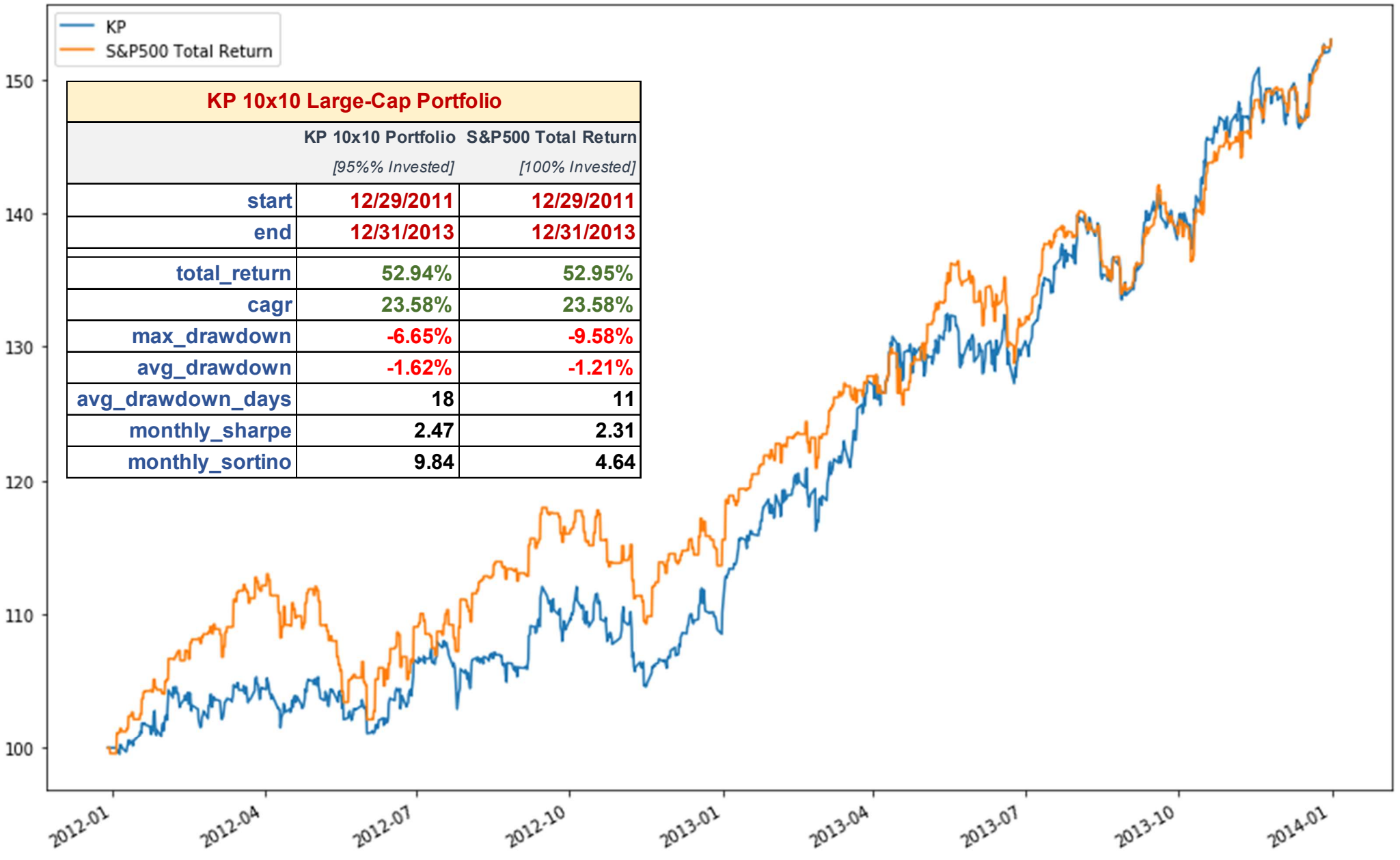
— KP
— S&P500 Total Return

2008-2009



KP 10x10 Large-Cap Portfolio		
	KP 10x10 Portfolio	S&P500 Total Return
	<i>[95% Invested]</i>	<i>[100% Invested]</i>
start	12/29/2009	12/29/2009
end	12/30/2011	12/30/2011
total_return	12.75%	16.28%
cagr	6.19%	7.84%
max_drawdown	-15.15%	-18.64%
avg_drawdown	-2.69%	-2.57%
avg_drawdown_days	27	26
monthly_sharpe	0.52	0.55
monthly_sortino	0.93	1.08

2010-2011



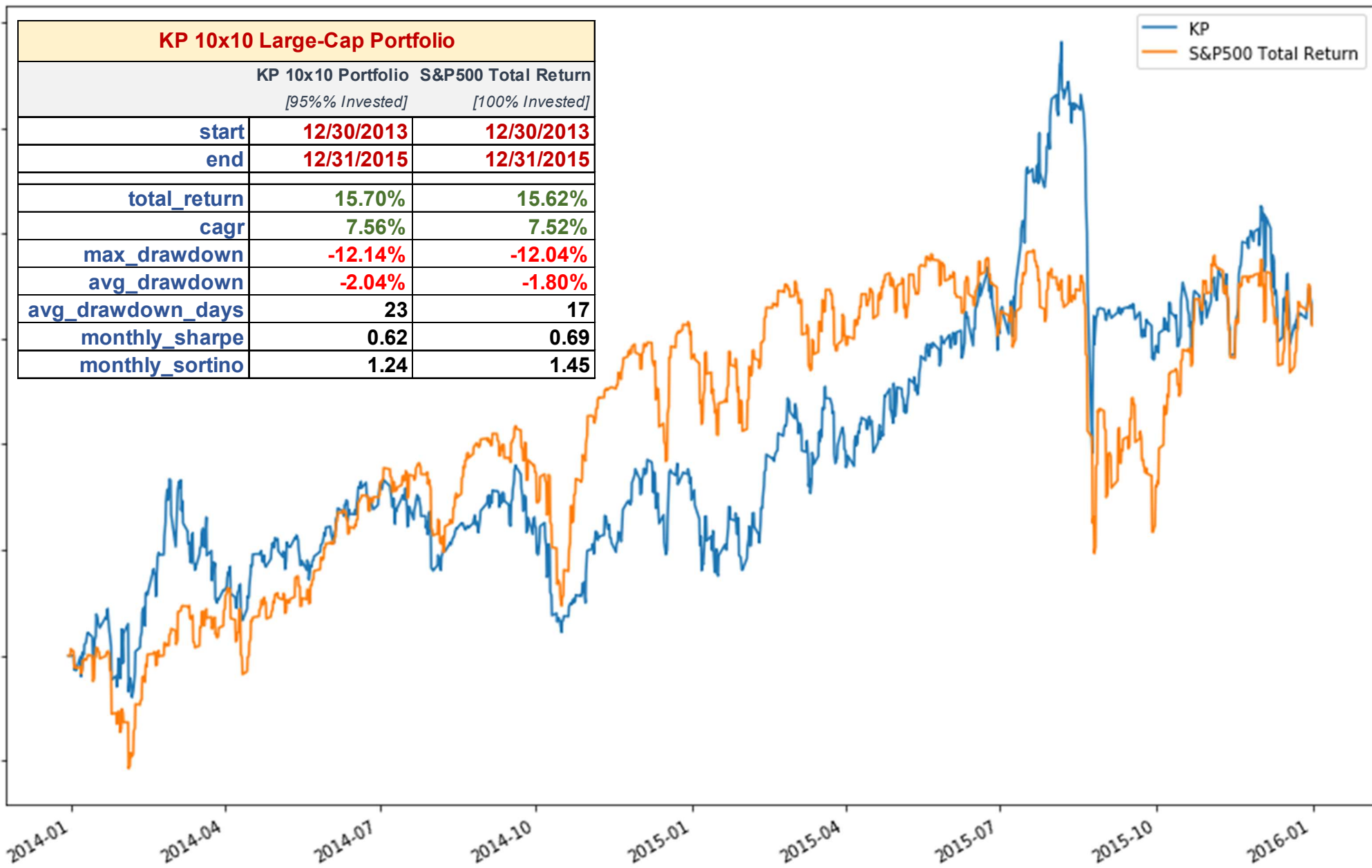
KP 10x10 Large-Cap Portfolio		
	KP 10x10 Portfolio	S&P500 Total Return
	<i>[95%% Invested]</i>	<i>[100% Invested]</i>
start	12/29/2011	12/29/2011
end	12/31/2013	12/31/2013
total_return	52.94%	52.95%
cagr	23.58%	23.58%
max_drawdown	-6.65%	-9.58%
avg_drawdown	-1.62%	-1.21%
avg_drawdown_days	18	11
monthly_sharpe	2.47	2.31
monthly_sortino	9.84	4.64

2012-2013

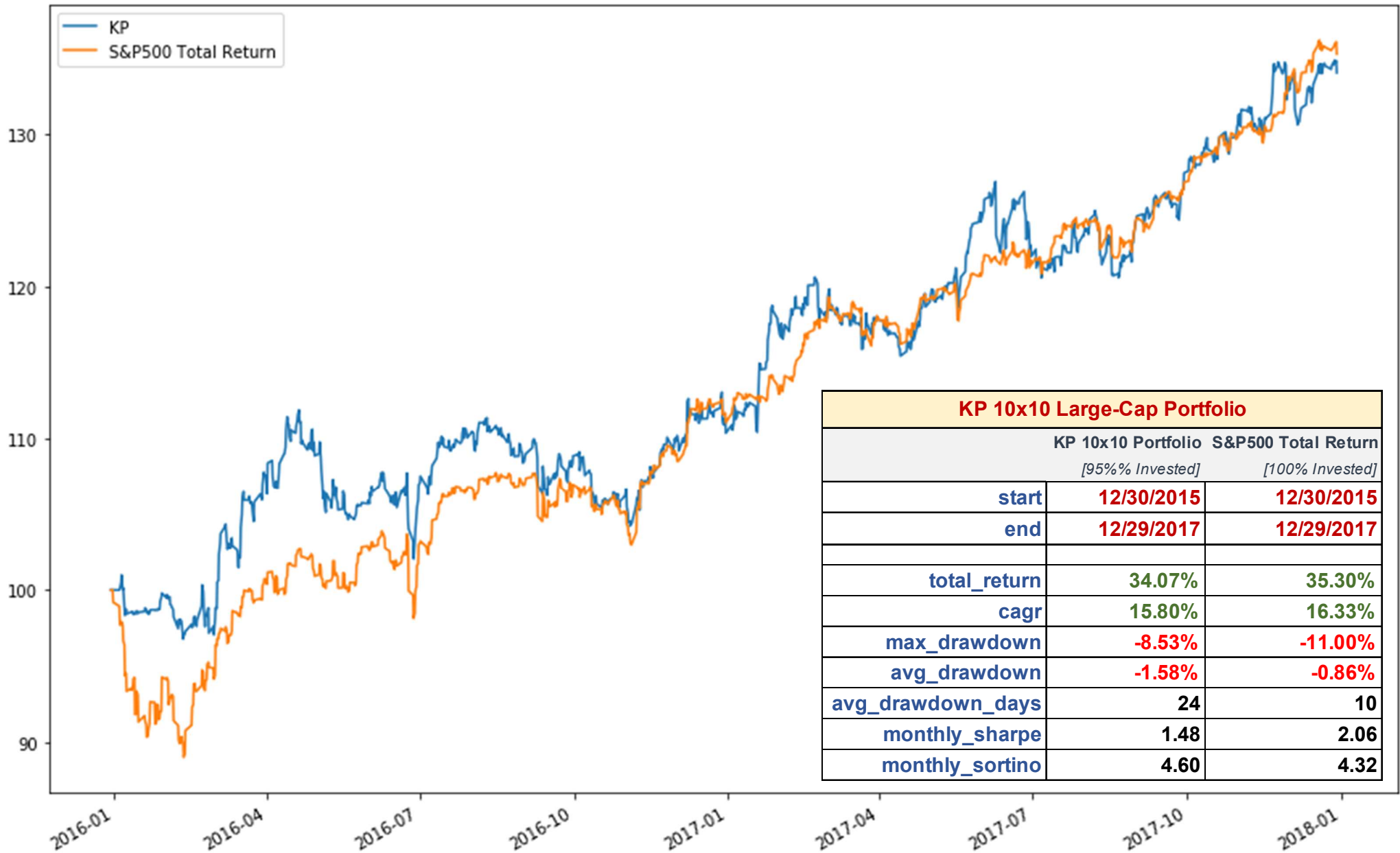
KP 10x10 Large-Cap Portfolio

	KP 10x10 Portfolio [95%% Invested]	S&P500 Total Return [100% Invested]
start	12/30/2013	12/30/2013
end	12/31/2015	12/31/2015
total_return	15.70%	15.62%
cagr	7.56%	7.52%
max_drawdown	-12.14%	-12.04%
avg_drawdown	-2.04%	-1.80%
avg_drawdown_days	23	17
monthly_sharpe	0.62	0.69
monthly_sortino	1.24	1.45

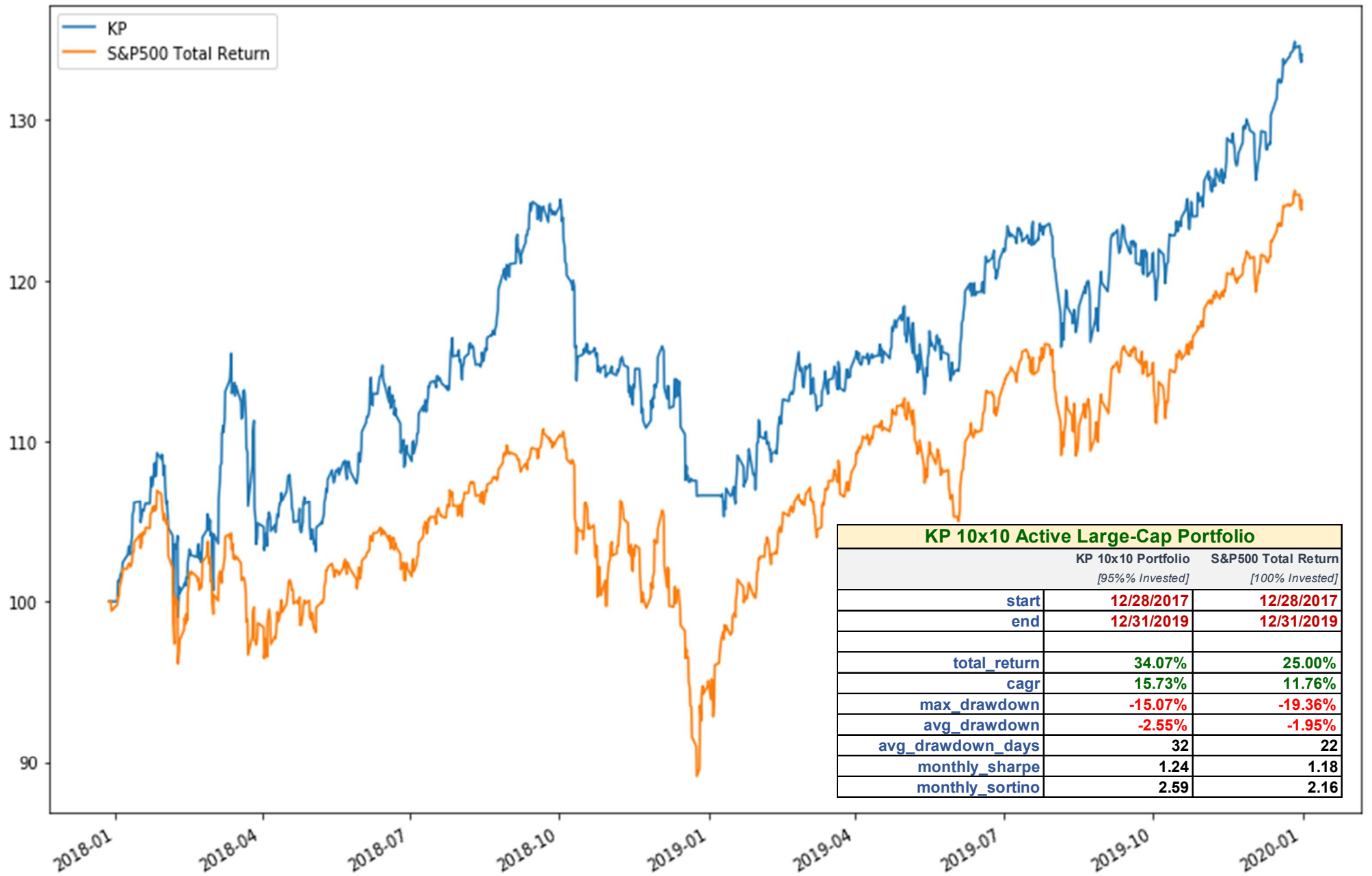
— KP
— S&P500 Total Return



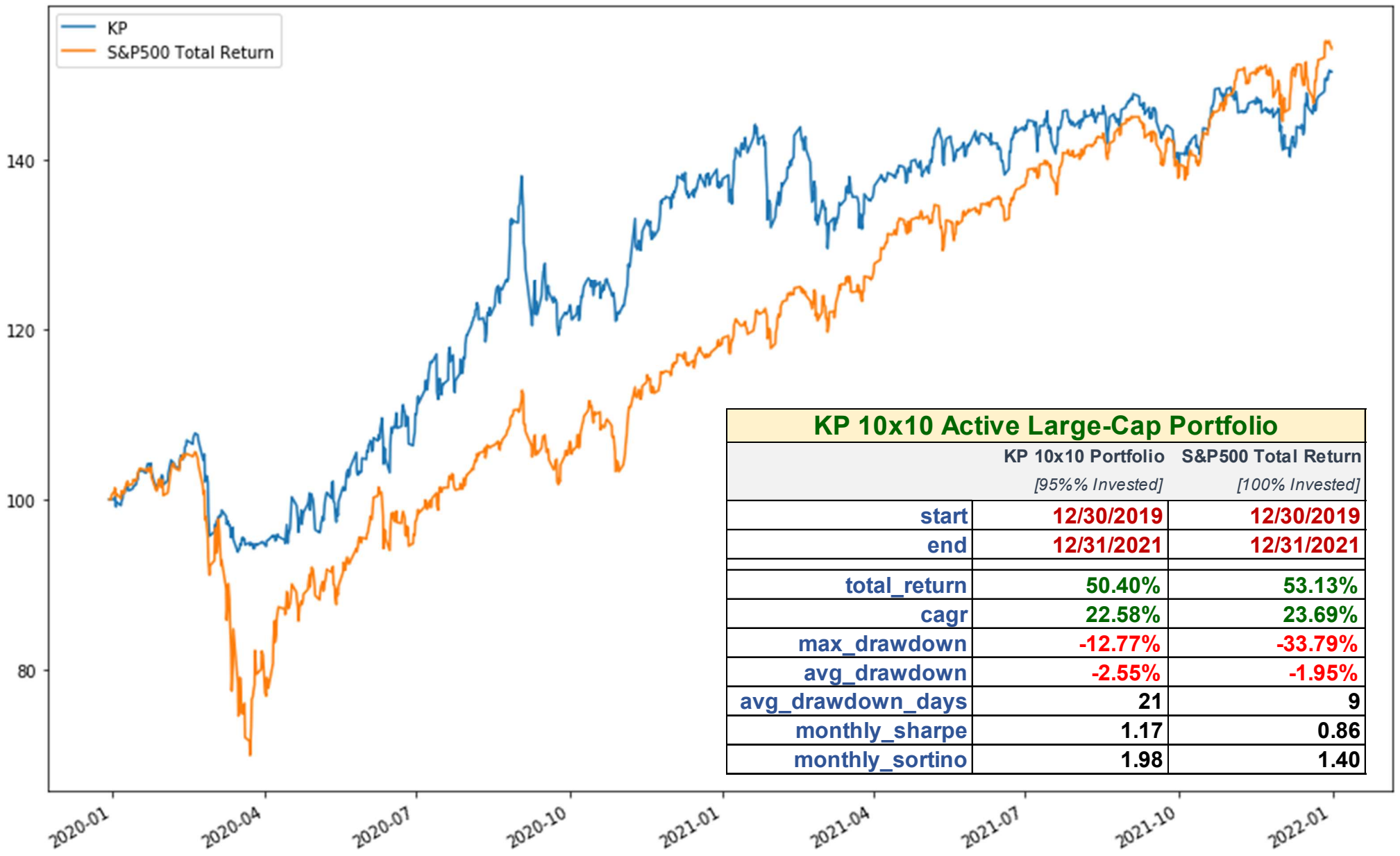
2014-2015



2016-2017



2018-2019



KP 10x10 Active Large-Cap Portfolio		
	KP 10x10 Portfolio <i>[95% Invested]</i>	S&P500 Total Return <i>[100% Invested]</i>
start	12/30/2019	12/30/2019
end	12/31/2021	12/31/2021
total_return	50.40%	53.13%
cagr	22.58%	23.69%
max_drawdown	-12.77%	-33.79%
avg_drawdown	-2.55%	-1.95%
avg_drawdown_days	21	9
monthly_sharpe	1.17	0.86
monthly_sortino	1.98	1.40

2020-2021

Notes on Performance

Portfolio Structure. When fully invested, the 10x10 portfolio rules suggest a 5% cash holding. In the strongly upward-biased price environment that prevailed over the simulation period, this understated returns versus the benchmark.

Rebalancing. The portfolios presented in this chart book were rebalanced daily — a programming convenience for the benefit of the simulation process. This reduced portfolio returns considerably, as it underweighted the return contribution of significant winning positions. Our real-world portfolios are rebalanced less frequently.

Interest on Cash. The simulations assume no interest on cash balances. Since the management protocol periodically generates significant cash balances, we estimate this also understated simulated returns by perhaps 25 basis points annually.

Dividends. Dividends are included for both the portfolio and the benchmark.

Transaction Costs. The simulations do not include a provision for transaction costs. Our real-world experience suggests these would have amounted to no more than 150 basis points annually, less for larger portfolios. These costs are inherent in the active / protective mandate, and, given the significant excess returns available from the process, could easily be assumed to be higher.

Survivorship Bias. The simulations theoretically benefit from the fact that Enron and Eastman Kodak, for example, are not in today's 120-stock database — therefore the system could not have (theoretically) purchased them 20 years ago. However, as we have experienced in recent years with Alibaba, General Electric or Wells Fargo — all issues that experienced significant downward repricings — the 10x10 analysis process is quite likely to have avoided owning them altogether.

Systematic Risk Management. Although our firm has several decades' experience with top-down systematic risk management overlays (market models), the charts and statistics in this report examine the performance of the base 10x10 portfolio process only.

