Active Factor Investing: Hedge Funds vs. the Rest of Us

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What Drives Investment Returns?

- Ang, Goetzmann, and Schaefer (2009) report on Norwegian Government Pension Fund active management by Norges Bank Investment Management:

  ...a major part of the fund's active returns before, during, and after the financial crisis could be ***explained by systematic factors***.

  ...the Norwegian fund should go beyond equities and bonds in its asset allocation: Norway should adopt a top-down approach of factor investing, ***especially for dynamic factors***.

  - Andrew Ang, Columbia University and BlackRock

Hedge Funds and Factor Investing

- Hedge fund management - skill or compensation for exposure to alternative risk factors?

...more often than not, they charge too much for these ***straightforward, non-magic strategies*** *and package them, again, with too much net long exposure.*

- Cliff Asness, AQR

*90% of what I see ... is "****taking exposure to factors that managers understand and can trade better than clients****."*

- John H. Cochrane, University of Chicago

The BIG Question

Can we do factor investing with ETFs

as good as hedge funds,

or even better than hedge funds?

What Do We Mean by ***Factors***?

Does "style" (beta×E(f), passive, no fee) vs. "selection" (alpha, active, fee) make any sense in the ***post-CAPM 27 factor, dynamic world****?*

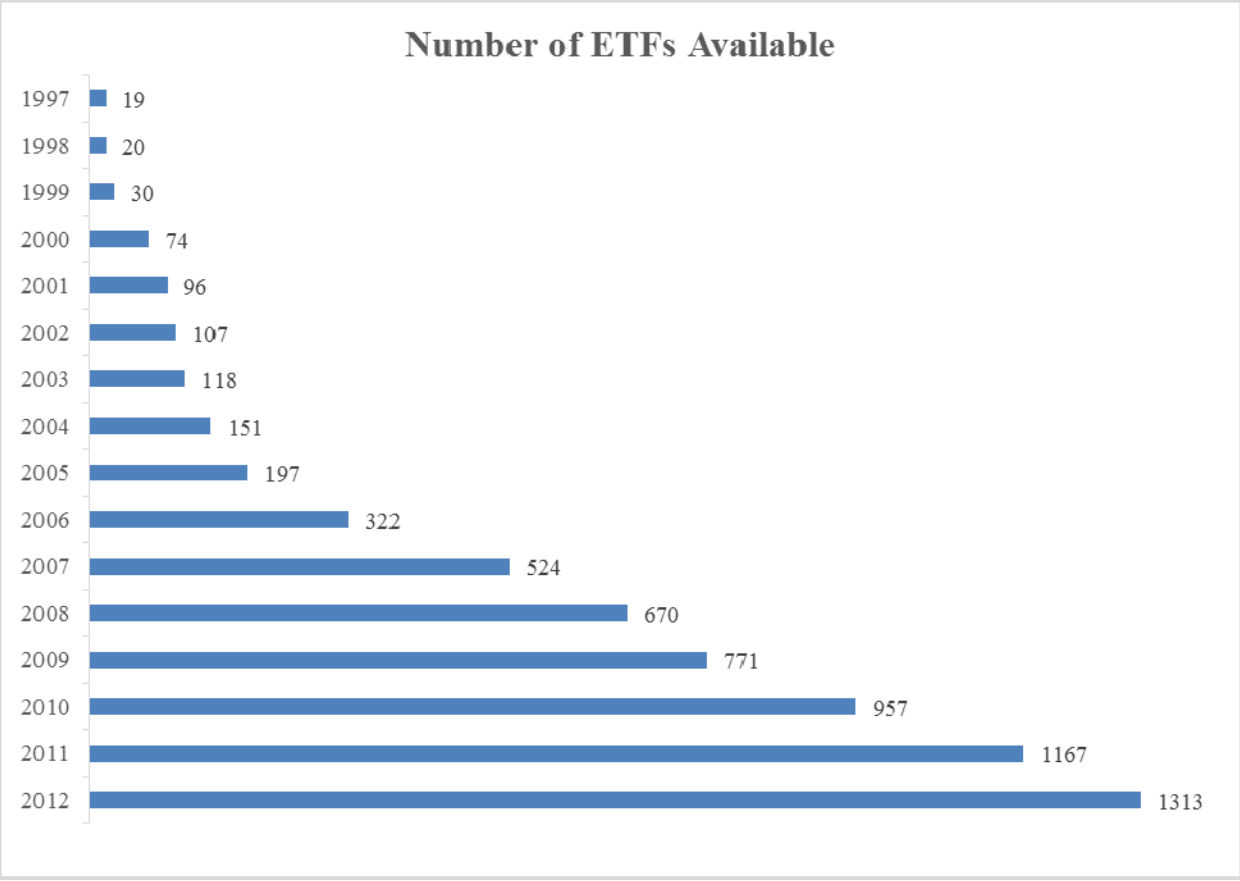
- John H. Cochrane, University of Chicago

- Any algorithmic trading strategy can be viewed as a risk factor!

- We use Exchange Traded Funds (ETFs) as proxies for potential risk factors
  - e.g. HVPW – high volatility put write
  - e.g. PBP – covered call write on S&P 500

Why ETF?

- ETFs provide access for ***all investors*** to a great variety of alternative risk factors that were previously available only to hedge funds
- Comprehensively span the space of alternative risk factors



Low cost

Liquid

Transparent

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Data and Sample Construction

- Bloomberg (Hedge Funds)
  - monthly net-of-fees returns,18,135 hedge funds
  - Include both live and graveyard funds, survivorship bias
  - Delete first 24 month observations, backfill bias
  - 1994-2012
- Morningstar (ETFs)
  - Monthly net-of-fees returns, 1,484 ETFs
  - 1994-2012
- Sample period considered:
  - 2005-2012 – *107-786 ETFs* used

How to Clone? What to Clone?

- Duanmu, Li, and Malakhov (2014)
  - **Span the space of alternative risk factors with ETFs**
  - **Beta-driven hedge fund returns => “cloneability”**
  - **Replicate “cloneable” hedge fund returns with ETFs**

Cloneable and Non-cloneable Funds, Out-of-Sample Portfolio, Quartiles, 2005-2012

Panel B: Year 2005 to 2012

Year	"Cloneable" Funds, Top R^2 Quartile			"Non-Cloneable" Funds, Btm R^2 Quartile		
	Adj. R^2	Annual Return		Adj. R^2	Annual Return	
		Hedge Funds	Clones		Hedge Funds	Clones
2005	0.815	9.25	11.32	0.215	7.00	6.26
2006	0.816	18.63	19.59	0.203	10.68	8.76
2007	0.824	16.89	15.16	0.196	11.76	6.64
2008	0.850	-26.66	-25.68	0.243	-4.10	-8.20
2009	0.925	38.31	29.74	0.237	7.69	0.55
2010	0.887	11.42	17.31	0.233	9.78	1.69
2011	0.913	-10.16	-7.79	0.263	-4.43	-0.06
2012	0.859	9.50	13.23	0.236	0.61	3.20
End Value		1.68	1.81		1.44	1.19
Monthly Return		0.62	0.72		0.39***	0.19*
(t-stat)		(1.58)	(1.61)		(2.74)	(1.98)
α		0.01	0.08		0.19*	-0.05
(t-stat)		(0.05)	(0.52)		(1.73)	(-0.73)
Sharpe Ratio		0.12	0.13		0.18	0.05
Info Ratio		0.01	0.06		0.20	-0.09
Skewness		-0.62	-0.68		-0.01	-1.50
Attrition Rate		12.53%			18.55%	
Mean Adj. R^2		0.861			0.228	

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What about Efficacy of Factor Beta Activity?

- Duanmu, Malakhov, and McCumber (2014)
  - **Introduce a measure of overall beta activity (BA)**
  - **Identify top beta active hedge fund managers**
  - **Top beta active (BA) hedge funds => superior out-of-sample performance**

Top Beta Active Funds, 2005-2012

	Cloneable Hedge Funds, Top Quartile of In-Sample R^2							Beta Active Hedge Funds, Top Quartile of BA Measure						
		Hedge Fund Porftfolio			Clone Portfolio				Hedge Fund Porftfolio			Clone Portfolio		
Year	In-Sample R^2	Return	Starting Funds	Ending Funds	Return	Starting Funds	Ending Funds	In-Sample R^2	Return	Starting Funds	Ending Funds	Return	Starting Funds	Ending Funds
2005	0.83	11.86	135	127	12.42	135	127	0.55	8.30	135	125	10.07	135	125
2006	0.83	16.17	180	164	19.36	180	164	0.48	13.05	180	171	17.11	180	171
2007	0.83	17.52	219	202	14.76	219	202	0.37	13.34	219	195	9.11	219	195
2008	0.86	-27.13	260	216	-26.88	260	216	0.46	-3.71	260	204	-6.68	260	204
2009	0.93	41.03	264	225	31.92	264	225	0.66	31.75	264	222	20.12	264	222
2010	0.89	11.83	286	257	18.29	286	257	0.53	10.81	286	229	6.72	286	229
2011	0.92	-9.73	278	233	-7.60	278	233	0.49	-7.32	278	235	-1.30	278	235
2012	0.85	9.55	246	220	13.07	246	220	0.54	2.74	246	222	8.52	246	222
End Value			1.74			1.84				1.86			1.80	
Mean Return			0.51			0.59				0.53**			0.50**	
(t-stat)			(1.28)			(1.29)				(2.16)			(2.14)	
Sharpe Ratio			0.13			0.13				0.22			0.22	
α			0.06			0.10				0.35**			0.22	
(t-stat)			(0.43)			(0.65)				(2.20)			(1.47)	
Info Ratio			0.05			0.08				0.25			0.19	
Mean R^2			0.87							0.51				
Attrition rate			11.40%							13.21%				

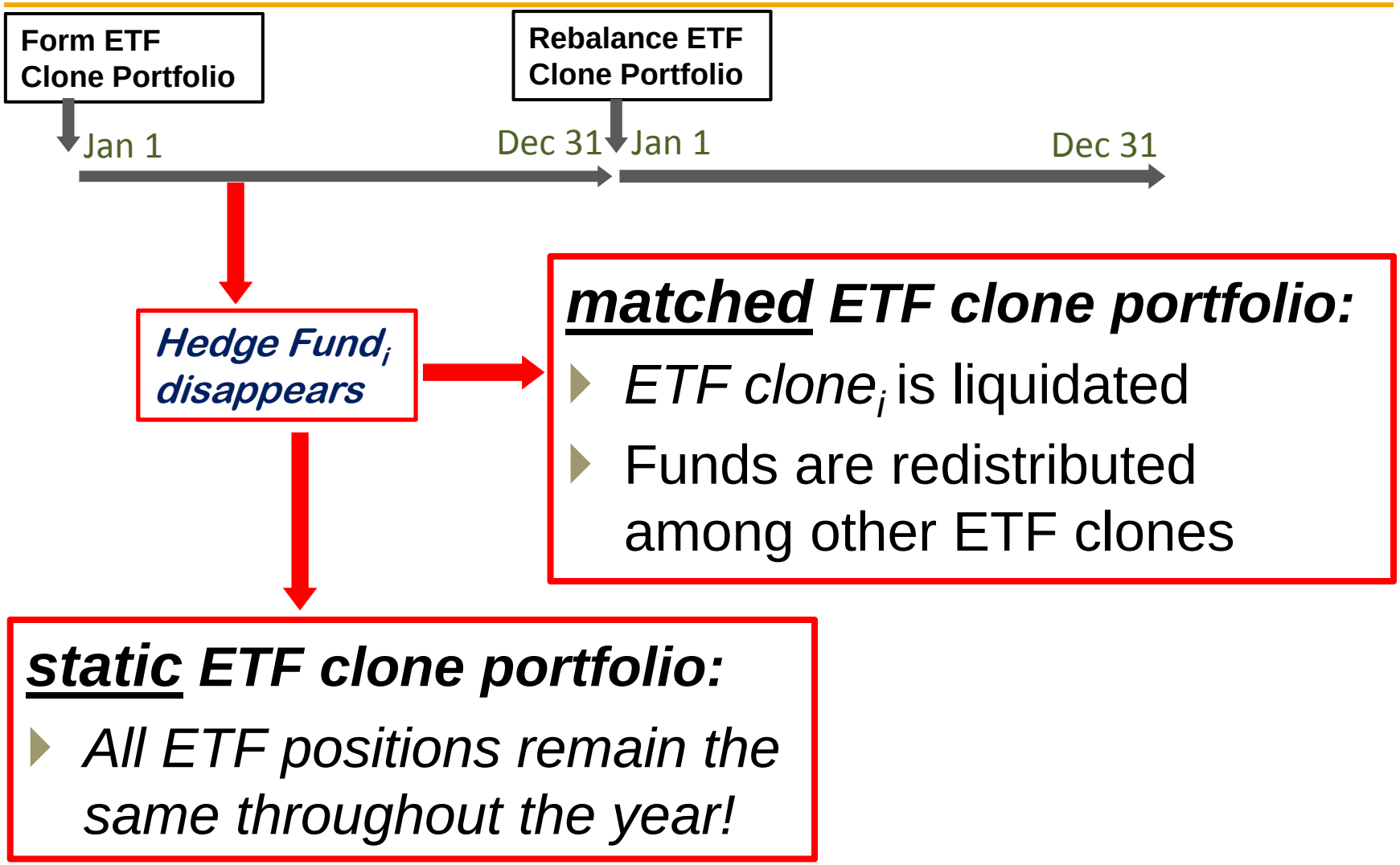
alas…

Active Factor Investing with ETFs

- Duanmu, Li, and Malakhov (2015)

- **Top BA Hedge Funds + Cloneability**
  = Superior ETF clone performance!

Out-of-sample Clone Portfolios



Top Beta Active Cloneable Funds, 2005-2012

		Hedge Fund Portfolio			Matched Clone Portfolio			Static Clone Portfolio		
Year	In-Sample R^2	Return	Starting Funds	Ending Funds	Return	Starting Funds	Ending Funds	Return	Starting Funds	Ending Funds
2005	0.84	10.07	43	42	11.67	43	42	11.68	43	43
2006	0.81	17.08	28	28	19.72	28	28	19.72	28	28
2007	0.81	34.74	10	10	21.22	10	10	21.22	10	10
2008	0.89	-9.07	28	19	-2.26	28	19	-0.95	28	28
2009	0.93	55.04	73	64	33.93	73	64	31.55	73	73
2010	0.89	9.32	44	39	16.36	44	39	15.05	44	44
2011	0.91	-11.79	16	14	-6.07	16	14	-4.71	16	16
2012	0.86	9.19	57	54	11.95	57	54	11.71	57	57
End Value			2.58			2.60			2.59	
Mean Return			0.93**			0.94**			0.93**	
(t-stat)			(2.23)			(2.16)			(2.23)	
Sharpe Ratio			0.23			0.22			0.23	
α			0.40			0.45*			0.46*	
(t-stat)			(1.58)			(1.67)			(1.72)	
Info Ratio			0.18			0.21			0.22	
Mean R^2			0.87			-			-	
Attrition rate			9.49%			9.49%			-	

Best!

Wow!!!

Highest Weight ETFs in the Clone Portfolio

Year	Ten ETFs with Highest Weights in the ETF Clone Portfolio										Aggregate Postive Weights	Aggregate Negative Weights	Total Portfolio Weights
2005	MDY 0.093	IWW 0.084	VTI 0.073	IGM 0.062	IBB 0.058	IVV 0.054	IYE 0.048	ITF 0.041	VXF 0.040	IJR 0.035	1.06	-0.02	1.04
2006	IEV 0.265	IBB 0.084	IXP 0.068	EWU 0.048	IWD 0.041	XLV 0.037	EWO 0.035	AGG 0.031	RSP 0.029	EWK 0.023	0.83	-0.06	0.77
2007	GLD 0.115	VDE 0.072	ADRU 0.070	EWC 0.066	EWO 0.066	IYH 0.065	IGE 0.063	EWA 0.062	EWZ 0.060	SPY 0.037	0.78	-0.45	0.34
2008	FXE 0.760	IYJ 0.031	IWS 0.016	IAU 0.013	EPP 0.012	TIP 0.010	VDC 0.010	EWM 0.010	VGT 0.008	EWU 0.006	0.90	-0.11	0.80
2009	FXE 0.328	RSP 0.095	DWM 0.046	RGI 0.046	GSP 0.043	DXJ 0.042	RYE 0.038	AGG 0.036	IWP 0.035	JPP 0.034	1.20	-0.03	1.17
2010	VTI 0.157	TOK 0.112	GBF 0.108	BWX 0.084	SDS 0.054	DWM 0.052	INY 0.049	GML 0.047	GBB 0.037	GMM 0.036	1.22	-0.04	1.18
2011	SH 0.242	IEV 0.164	JYN 0.150	IWR 0.147	JPP 0.141	ACWI 0.109	RYE 0.088	GMM 0.049	IFNA 0.049	FXO 0.048	1.31	-0.22	1.09
2012	ACWI 0.118	DWM 0.067	ITR 0.059	XLE 0.048	DLN 0.043	RSP 0.039	HGI 0.038	GLD 0.036	IGE 0.030	EEM 0.030	0.80	-0.24	0.56

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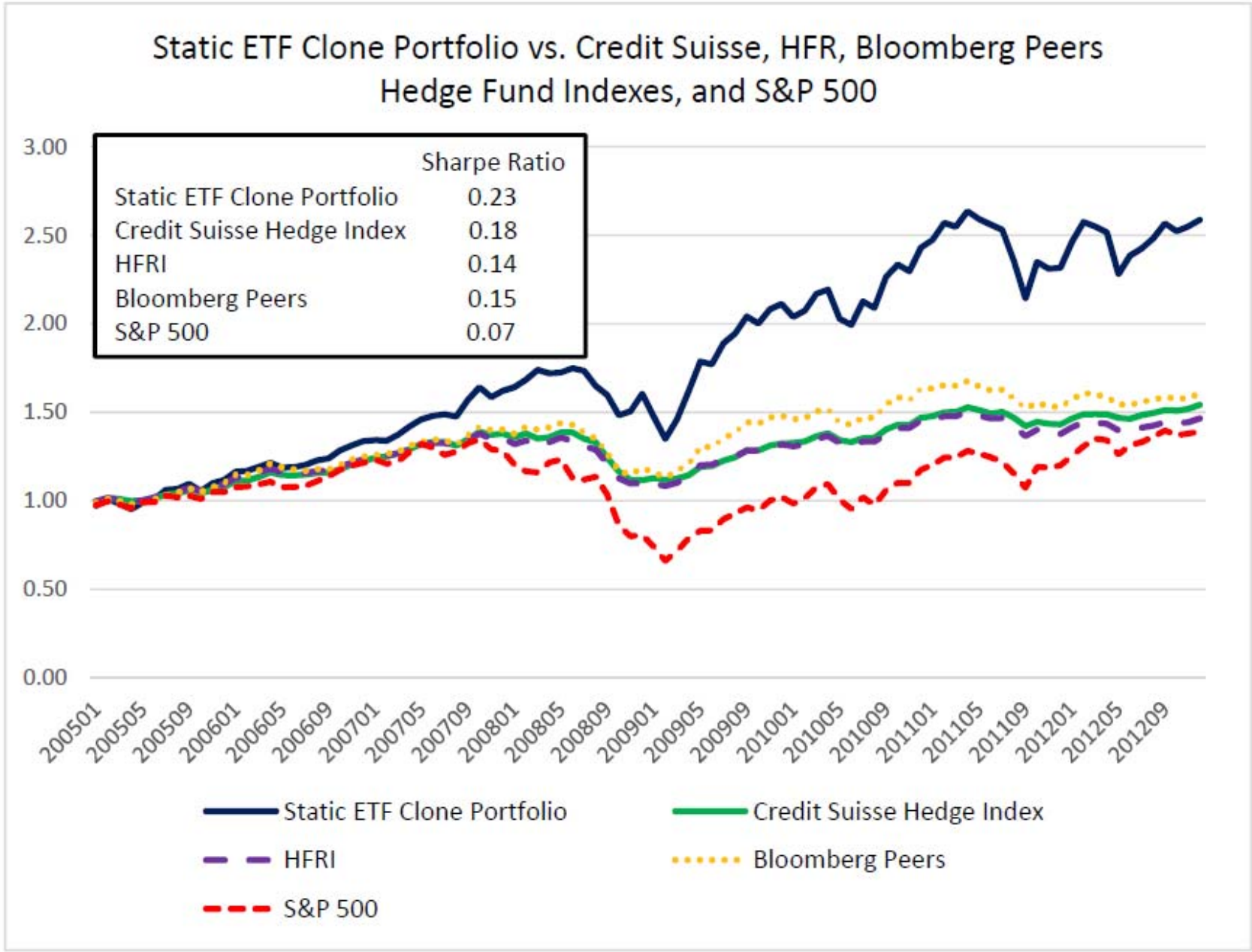
Performance Comparison



Bottom Line

Yes, we can do factor investing with ETFs better than hedge funds!