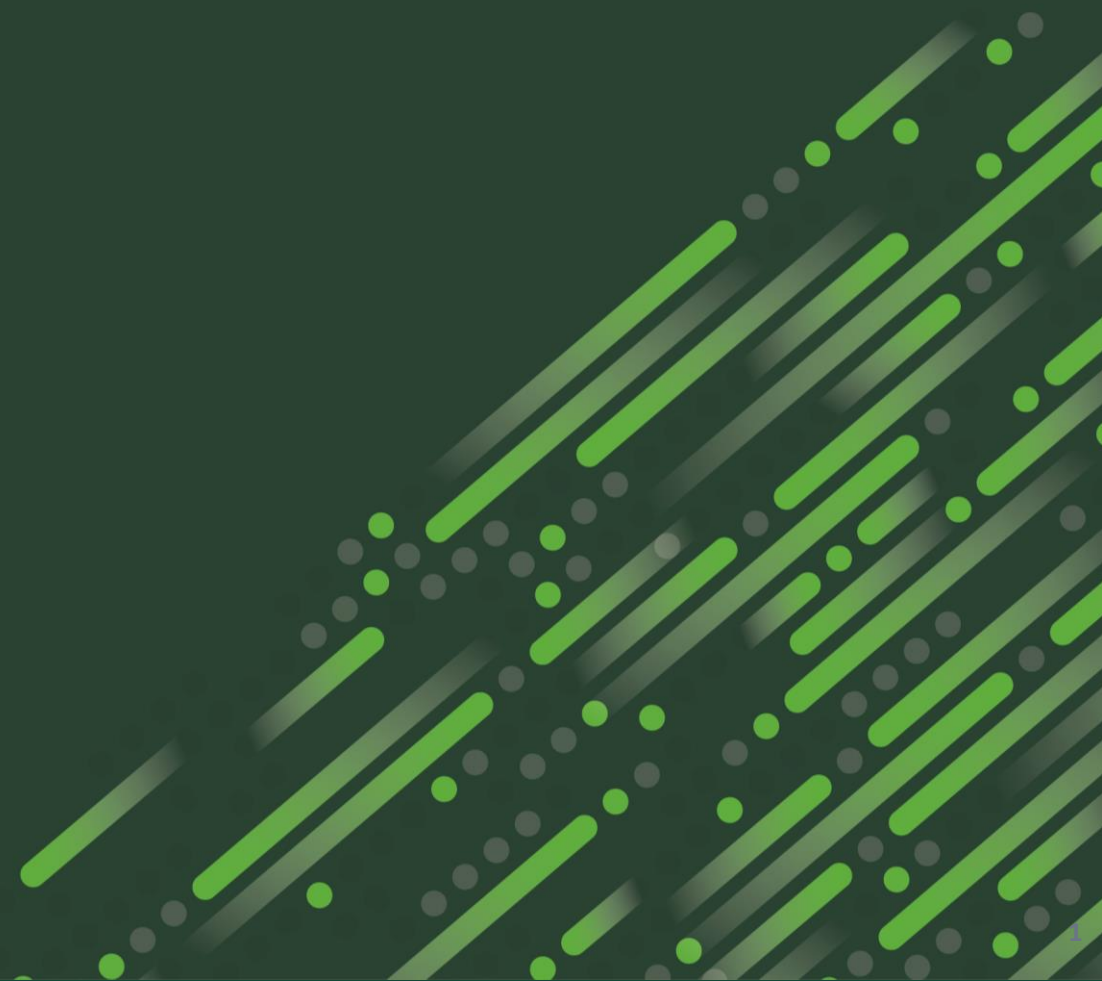




EPFR Flow-Percentage Sector Strategy



Overview



- The EPFR flow-momentum sector strategy picks sectors within geographic regions.
- The strategy uses daily fund flows in conjunction with monthly sector and country allocations.
- The strategy is based on percentage flow into sectors weighted by the regional emphasis of each fund.
- Daily percentage flow is compounded over a trailing ninety-five day period.
- A fund's contribution to sector flow is scaled by the allocation of that fund to the region of interest.
- The best results come from trading Emerging, Japanese and United Kingdom sectors.
- For those regions, the top two sectors, in terms of ninety-five day percentage flows, tend to outperform the bottom two sectors by nearly 5% per year.

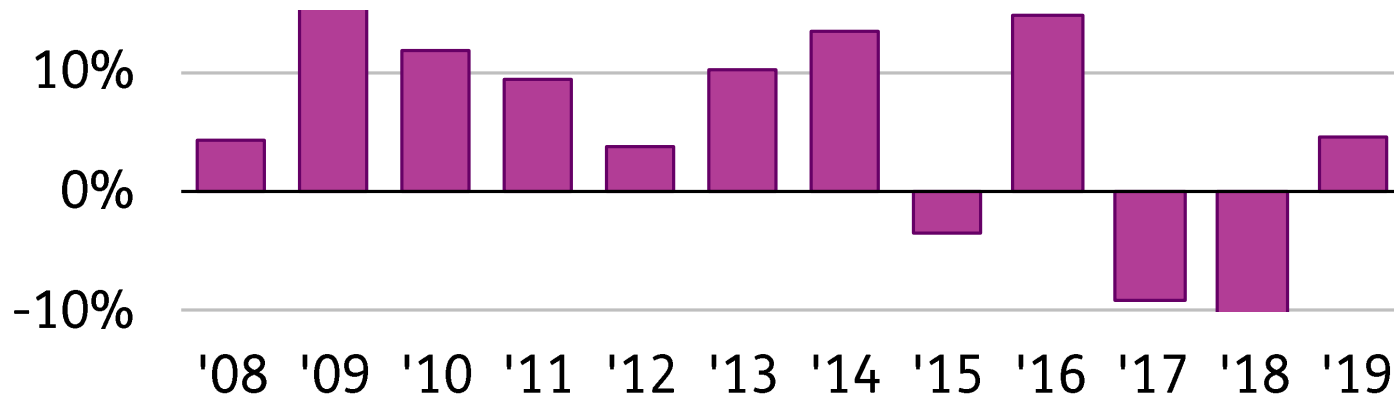
Performance (weekly holding period)



Average weekly return (annualized)							
Universe	Q ₁ ex Q ₅		Return over equal-weight regional sector basket				
	Sharpe	Return	Q ₁	Q ₂	Q ₃	Q ₄	Q ₅
EM	0.45	5.7%	2.1%	2.2%	-2.5%	2.3%	-3.6%
Japan	0.23	3.8%	1.9%	-1.3%	-3.4%	4.9%	-1.9%
UK	0.27	4.9%	5.1%	-2.4%	-2.5%	-0.7%	0.2%
Eurozone*	-0.36	-4.7%	-2.6%	0.0%	0.0%	0.1%	2.1%
US	-0.06	-0.8%	-1.1%	-1.3%	-1.3%	3.7%	-0.3%

* MSCI EMU countries

Total return by calendar year (top over bottom fifth of EM sectors)



Performance (longer holding periods)



		Q ₁ ex Q ₅		Return over equal-weight regional sector basket				
	Hold Period	Sharpe	Return	Q ₁	Q ₂	Q ₃	Q ₄	Q ₅
EM	Fortnightly	0.49	5.9%	2.6%	1.4%	-1.3%	1.1%	-3.4%
	Monthly	0.49	6.0%	3.1%	1.4%	-1.0%	-0.2%	-2.9%
	Bimonthly	0.39	5.1%	3.4%	0.8%	-0.9%	-1.4%	-1.7%
	Quarterly	0.36	4.7%	3.6%	0.2%	-0.6%	-1.9%	-1.1%
	Semi-annual	0.32	4.0%	3.1%	-0.6%	-0.6%	-0.7%	-0.9%
Japan	Fortnightly	0.25	4.1%	1.7%	-0.5%	-1.8%	3.4%	-2.5%
	Monthly	0.18	2.8%	0.1%	0.9%	-1.3%	3.1%	-2.8%
	Bimonthly	0.09	1.3%	-1.4%	-0.3%	0.8%	3.2%	-2.7%
	Quarterly	0.05	0.6%	-1.4%	-1.0%	1.9%	2.2%	-2.1%
	Semi-annual	0.15	2.0%	-1.1%	-0.4%	2.2%	2.1%	-3.1%
UK	Fortnightly	0.29	5.3%	4.7%	-2.2%	-2.1%	0.0%	-0.6%
	Monthly	0.18	3.2%	2.2%	-1.7%	-0.8%	0.9%	-1.0%
	Bimonthly	0.08	1.4%	0.7%	-1.4%	0.8%	0.2%	-0.7%
	Quarterly	0.04	0.8%	0.0%	-0.8%	0.8%	0.4%	-0.8%
	Semi-annual	0.07	1.6%	0.7%	-0.7%	0.9%	-0.1%	-0.9%

Calculation of Daily Percentage Flow



- We calculate a fund's impact on a sector by multiplying that fund's flow by the product of its sector and region allocations.
- We calculate the assets held in a sector by a fund by multiplying that fund's assets by the product of its sector and region allocations.
- Use geographical focus averages when a fund does not report allocations.
- Sum assets held in and impact on a sector across funds.
- These sums are computed across all equity funds with cross-border foci that report daily flows.
- Divide total impact on by total assets held in a country to get daily percentage flow into a sector.

Strategy Implementation



- For each sector, compound daily percentage flow over the trailing ninety-five days.
- Rank sectors into five equal baskets based on ninety-five day percentage flow.
- Go long the top fifth and short the bottom fifth.
- Rebalance weekly.

Coverage

AUM (\$BB) of Equity funds reporting flows

			Daily	
	Monthly	All Funds	Cross-Border	Single Country
2007	6,241	2,717	1,173	1,544
2008	5,798	2,743	1,116	1,627
2009	4,794	2,273	887	1,386
2010	5,889	2,840	1,143	1,697
2011	7,595	3,932	1,601	2,331
2012	7,945	4,107	1,502	2,605
2013	10,109	5,525	1,964	3,561
2014	12,488	6,879	2,556	4,323
2015	13,561	7,575	2,755	4,820
2016	13,748	7,672	2,833	4,838
2017	16,148	9,385	3,656	5,729
2018	18,459	10,845	4,203	6,642
2019	19,075	11,096	4,063	7,033
2020	20,245	12,247	4,516	7,731

* At the end of July of each year

