

18 June 2010

Cross Asset Feature

The value of weekly fund flow data

How fund flow data helps to improve tactical asset allocation

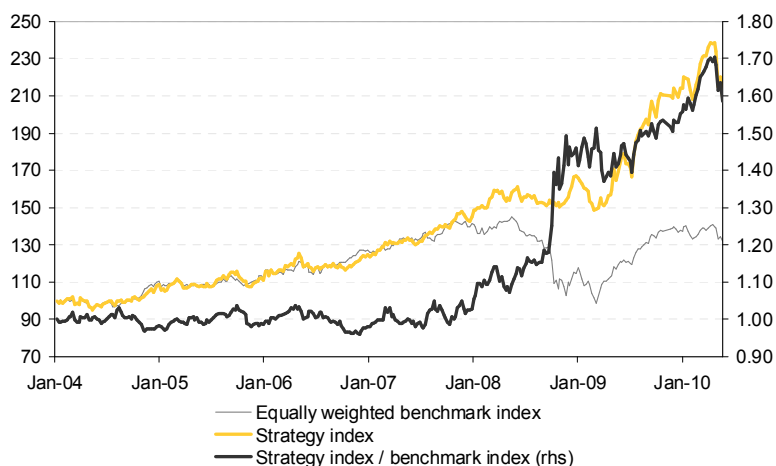
When deciding on tactical asset allocation, investors often support their decision-making using a scoring system that ranks the asset classes according to various criteria. Based on weekly fund flows since 2001, this article reveals that fund flow data can add significant value to such a scoring system. It shows that fund flow data allows one to achieve excess returns versus equally-weighted benchmarks in tactical regional equity allocation, tactical fixed income sector allocation, and tactical equity versus bond allocation. Investors can find the relevant fund flow information necessary to implement the backtested strategies in our weekly *Cross Asset Monitor*.

When deciding on tactical asset allocation, investors often support their decision-making using a scoring system that ranks the asset classes according to various criteria. In this article, we analyse whether fund flows add value to such a scoring system. Money flows are the ultimate drivers of asset prices. But it is not just that money flows drive performance – good asset performance also tends to attract money flows. This interplay means fund flows tend to show some inertia, and as such should contain some momentum information.

It is not the first time that we examine the predictive power of fund flows.¹ However, our previous analysis was based on data up to summer 2006 only. We wonder whether fund flow data would have helped during the volatile market conditions observed since then.

Based on backtests of simple investment strategies utilising only weekly fund flow information, this note shows that fund flow information improves tactical asset allocation decisions. In particular, it shows that successful regional equity allocation and fixed-income sector allocation strategies can be derived based only on the relative strength of the four-week average fund flow as a percentage of assets under management (AuM). Moreover, using the direction of the flows into or out of risk assets and into or out of money markets as indicators of risk appetite, highly successful bond-equity allocation strategies can be implemented.

CHART 1: Global equity vs global bond allocation strategy solely based on fund-flow data vs equally weighted benchmark (for details see pp. 7+8)



Source: EPFR, Datastream, Commerzbank Corporates & Markets Our backtested models do not include relevant transaction costs or taxes. Past performance may not be a reliable guide to future performance.

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¹ See, for example, Bernd Meyer, Joelle Anamootoo and Ingo Schmitz: "The Predictive Power of Weekly Fund Flows", The Technical Analyst, June 2008, pp. 19-26.

Data and methodology

We aim to analyse the predictive power of fund flows for

- Regional equity allocation.
- Sector allocation in the fixed-income space.
- Allocation between equities and bonds.

EPFR tracks funds on a global basis for a mix of retail and institutional investors

We use weekly fund flows provided by Emerging Portfolio Fund Research (EPFR, www.epfr.com). EPFR tracks funds and ETFs on a global basis. The investors are a mix of retail and institutional investors. EPFR estimates that 70% of them are institutional, mainly pension funds and insurance companies. In our analysis we focus on the following fund categories that are available on a weekly basis: seven equity regions (US, Western Europe, Japan, Pacific, EMEA, Asia ex-Japan, LatAm), three fixed-income sectors (US bonds, EM bonds, HY bonds), money market funds as well as the aggregates, all equities and all bonds. Chart 2 summarises the number and total assets of the funds in the EPFR universe.

CHART 2: Number and size of funds in the EPFR universe for weekly fund flows

As at 02/06/2010	Asset under Management (\$bn)	Number of Funds	Asset under Management (\$bn)	Number of Funds
All equities funds	3,167	14,284	All bond funds	1,273
Developed market equity funds	2,666	11,585	US Bonds	728
US	1,666	5,758	EM Bonds	81
Europe	263	1,972	High Yield	129
Japan	34	562	Int. Bonds	335
Pacific	19	176		
International equity funds	684	3,117	Others	3,029
Emerging market equity funds	501	2,699	Money Market	2,784
EMEA	34	493	Balanced	245
Asia Ex-Japan	180	1,211		
Latin America	45	229	Total	7,829
Global Emerging Markets	243	766		23,650

Source: EPFR, Commerzbank Corporates & Markets

Weekly equity fund flows are generally available from late 2000 onwards. Japan is the only exception, with data starting in October 2001. Aggregated bond fund flows also start in 2001. Unfortunately the more detailed fixed-income sectors are only covered from May 2003 (HY and US bond funds) and early 2004 (EM bond funds). Data on money market fund flows finally started only in January 2007.

We focus on fund flows as a proportion of assets under management...

To avoid double counting and strong volatility in flows, we focus on pure fund flows, i.e. excluding ETF flows. We are concerned only with fund flows as a proportion of assets under management (AuM) and not the absolute volume of flows, as the funds covered by EPFR are a representative sample only and EPFR has widened its coverage of fund flows over time.

The cut-off point for the inclusion of data by EPFR is Wednesday close of business. After collation, the fund flow statistics are published each Thursday evening US time and can be found in our weekly *Cross Asset Monitor*.

The strategies we show either reallocate each Friday at close of business based on the fund flow data published the evening before or, taking a more practical approach, reallocate at the end of each month based on the latest available fund flow data.

... in particular the four-week average of flows, to reduce volatility and extract the major trends

All strategies are based on four-week average flows as a percentage of AuM rather than solely on the last weekly observation. This reduces volatility and allows the extraction of major trends in flows. Moreover, for strategies with monthly reallocation, the four-week average comprises all information from the previous month. Results do in some cases even improve when using alternatives such as five-week average flows or three-week average flows. However, to avoid falling into the trap of data mining, we stick to four-week averages for all analyses.

(1) Predictive power of fund flows for regional equity allocation

For equity allocation, we first allocate across seven regions and then simply switch between developed and emerging market equities

Here we assess whether the relative strength of flows for different regions contains any explanatory power for subsequent relative performance of the regions. We use two approaches. First, we look at the seven main regions covered by the EPFR fund flow data: Western Europe, the US, Japan, Pacific, Latin-America, Asia ex Japan, and EMEA. Second, we only distinguish between equity markets in emerging and developed economies. The benchmark is in both cases an equally weighted portfolio of the respective region, readjusted weekly. We apply MSCI total return indices in dollars for the individual regions and assume the investment decision is implemented based on Friday's closing prices.

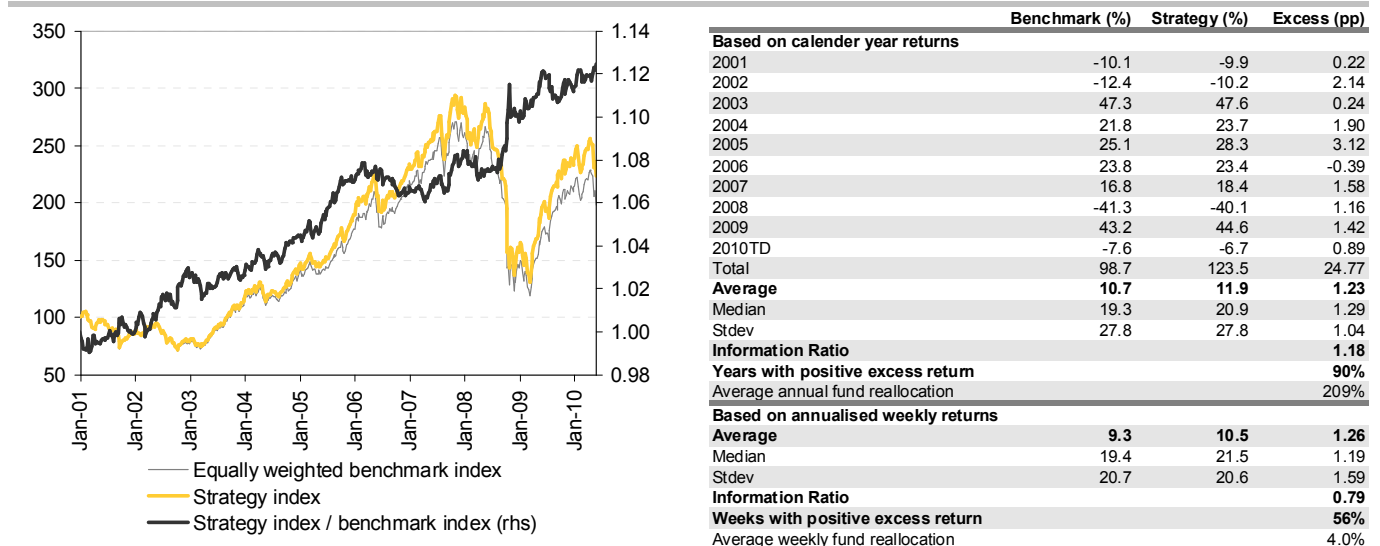
Relative allocation across seven equity regions

In the first approach, the cross-sectional comparison of the flows is based on the four-week average flow as a percentage of AuM. Each week we normalise these seven observations by calculating the cross-sectional z-score. These z-scores are capped at 2 to reduce the impact of outliers.² We ensure though, that the sum of the z-scores equals zero. The strategy takes active bets relative to the benchmark with the size and the direction of the active bet similar to the z-score of the flows times a fixed multiplier. For example, if a region has a z-score of 1, we add one percentage point, times the multiplier, to the initial weighting of 14.3% (=1/7) to that region. Therefore every week we adjust our positions in all seven regions around their initial positions of 14.3%, depending on their respective z-score values. We apply a multiplier of four, meaning that the absolute size of the maximum active bet equals 8pp.

Weekly allocation across seven regions leads to a statistically significant information ratio of 1.18 over 10 years

This strategy outperformed the market in 9 of the 10 years since the end of 2000 (Chart 3). The only year the strategy underperformed was 2006, when it lost 39bps relative to the benchmark. In total, the strategy outperformed by 25pp. The average excess return per calendar year is 1.23pp with a standard deviation of only 1.04, resulting in a statistically significant information ratio of 1.18.³ Some 56% of the weekly excess returns have been positive. Fund reallocations of 209% of the portfolio size were needed annually, suggesting that an excess return can be generated even including transaction costs.

CHART 3: Weekly regional equity allocation based on relative strength of four-week average fund flows



Source: EPFR, Datastream, Commerzbank Corporates & Markets

Our back-tested models do not include relevant transaction costs or taxes. Past performance may not be a reliable guide to future performance.

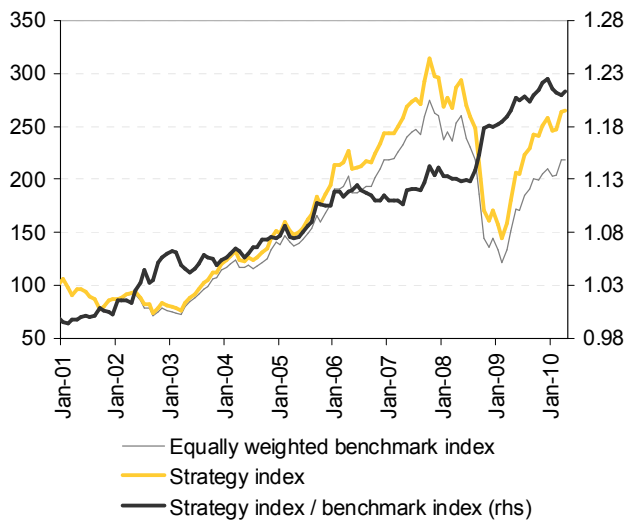
² The analysis starts at the end of 2000. As Japanese fund flows are only available from October 2001, we initially focus on six regions only. During this initial phase, the benchmark is thus also an average of the six regions.

³ The information ratio relates the average excess return to the standard deviation of the excess return. The latter is often called the tracking error. While the size of the active weights taken affects the excess return and the tracking error, the information ratio is independent of the size of the active weights. It is therefore the preferred measure of the information content/allocation skill of a strategy or a fund manager. The higher the information ratio and the longer the time period over which it is measured, the higher the statistical significance of the results. As a rule-of-thumb, if the square root of the number of years times the information ratio exceeds 3, the results are highly significant.

Monthly allocation across seven regions yields similarly convincing results

Now, let's take a more practical course of action. Rather than reallocating each Friday, the portfolio will now be reallocated at the end of each month, based on the latest available fund flow information. Once again we use scoring based on the four-week average flow as a percentage of AuM as described above. It is very encouraging to find that this strategy leads to practically the same convincing results (Chart 4). The overall excess return is even larger and the average annual fund reallocation drops to 177%. The information ratio of this strategy remains statistically significant.

CHART 4: End of month regional equity allocation based on relative strength of four-week average fund flows



	Benchmark (%)	Strategy (%)	Excess (pp)
Based on calendar year returns			
2001	-13.2	-12.9	0.21
2002	-11.3	-6.2	5.13
2003	48.9	48.0	-0.95
2004	22.8	25.2	2.39
2005	25.2	28.9	3.70
2006	23.7	24.6	0.96
2007	19.2	22.0	2.84
2008	-44.5	-42.6	1.89
2009	45.7	51.2	5.50
2010TD	4.0	3.0	-0.99
Total	118.6	165.1	46.53
Average	12.1	14.1	2.07
Median	21.0	23.3	2.14
Stdev	28.7	28.9	2.30
Information Ratio			0.90
Years with positive excess return			80%
Average annual fund reallocation			177%
Based on calendar month returns			
Average	10.4	12.5	2.09
Median	23.3	24.1	1.17
Stdev	19.6	19.7	1.94
Information Ratio			1.07
Months with positive excess return			54%
Average monthly fund reallocation			14.8%

Source: EPFR, Datastream, Commerzbank Corporates & Markets

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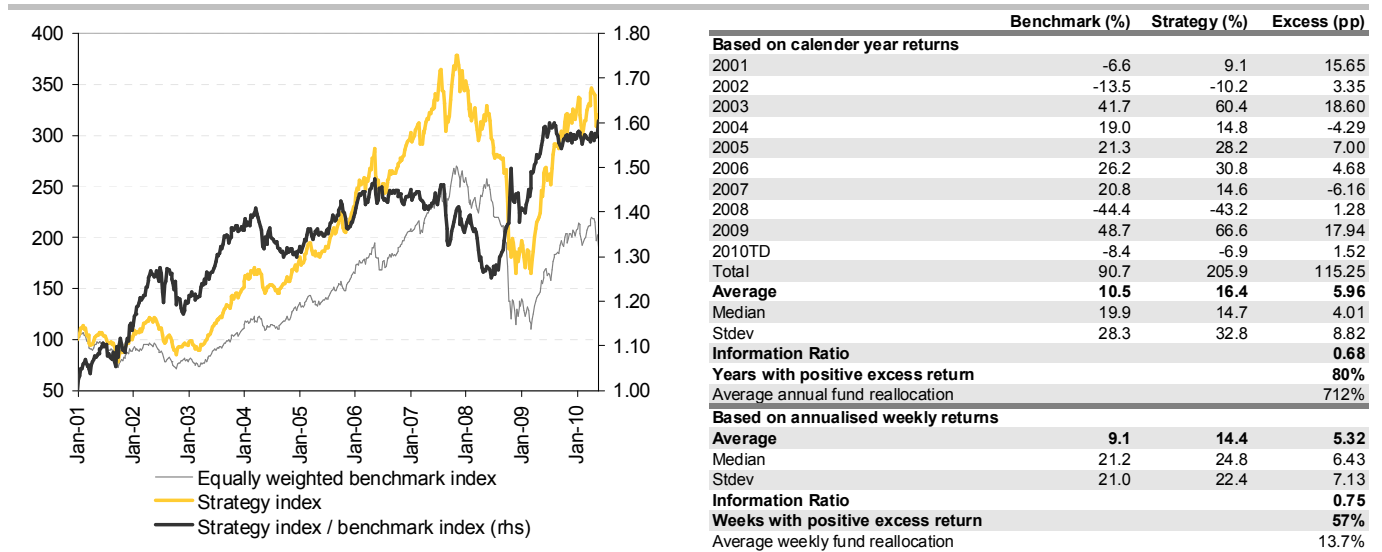
Switching between developed and emerging market equities

The second approach reallocates solely between developed market equities (MSCI World in dollars) and emerging market equities (MSCI Emerging Markets in dollars) on a weekly basis. The strategy is fully invested in the region that has seen the strongest inflow or the lowest outflow of both, based on the four-week average flow as a percentage of AuM – thus it is a ‘best-of-two’ strategy. The benchmark is equally weighted in developed market and emerging market equities on a monthly basis.

Weekly allocation between developed market and EM equities would have resulted in 6pp average annual excess return since 2001

As shown in Chart 5, this strategy outperformed the market in 8 of the 10 years since the end of 2000. Only in 2004 and in 2007 did it lose 4.29pp and 6.16pp relative to the benchmark. In total, the strategy outperformed by 115pp. The average excess return per calendar year was 5.96pp with a standard deviation of 8.02, resulting in an information ratio of 0.68. Some 57% of the weekly excess returns were positive. In an average calendar year, the strategy switched seven times between the two regions, in other words the average duration without a switch was slightly less than two months.

CHART 5: Weekly 'best-of-two' strategy for developed and emerging market equities based on relative strength of four-week average fund flows



Source: EPFR, Datastream, Commerzbank Corporates & Markets

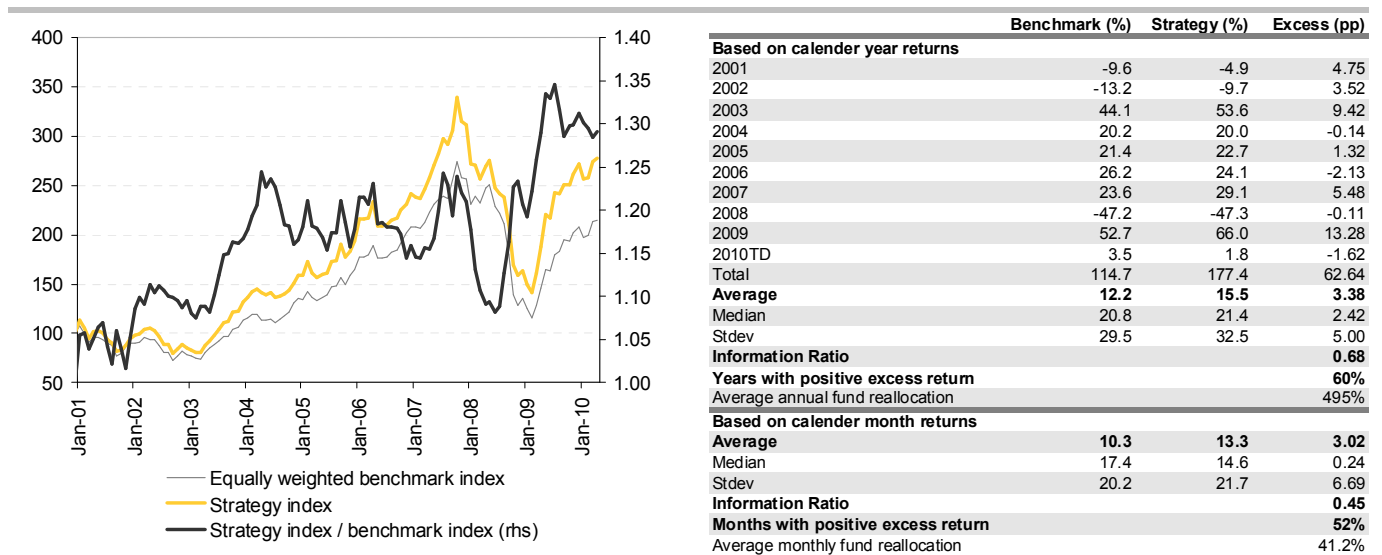
Our back-tested models do not include relevant transaction costs or taxes. Past performance may not be a reliable guide to future performance.

Monthly allocation between developed market and EM equities would have still resulted in an information ratio of 0.68 since 2001

Similarly to the first approach with the allocation across seven equity regions, we also test the more practical course of action with reallocation at the end of each month. Thus, at the end of each month we look at the latest available four-week average fund flow as a percentage of AuM for developed and emerging market equities and invest fully into the region with the strongest flow.

The results (Chart 6) are not as strong as for the weekly switching. However, the annual excess return is still above 3pp with an information ratio of 0.68. In an average year, the strategy switches five times between both regions, i.e. about once each quarter on average.

CHART 6: End-of-month 'best-of-two' strategy for developed and EM equities based on relative strength of four-week average fund flows



Source: EPFR, Datastream, Commerzbank Corporates & Markets

Our back-tested models do not include relevant transaction costs or taxes. Past performance may not be a reliable guide to future performance.

Overall, the results of both approaches clearly suggest that the relative strength of weekly fund flows does indeed add significant value to models for regional equity allocation.

(2) Predictive power of fund flows for FI sector allocation

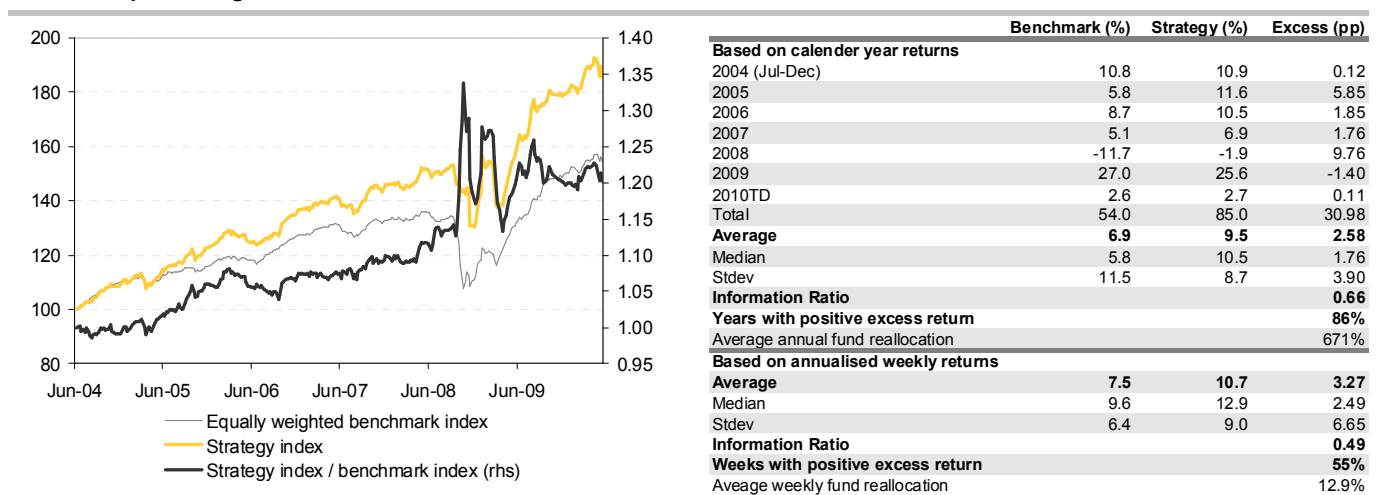
Despite the limited history available, the results suggest that fund flow data also contain predictive power for sector allocation in the fixed-income space

Given the encouraging results for regional equity allocation, let us now examine a similar strategy in the fixed-income space. Unfortunately, bond fund flow data for the individual sectors, emerging market bonds, high yield bonds and US bonds, are only completely available from early 2004. To measure the total return of the individual fixed income sectors we use the following total return indices, iBoxx \$ Overall, ML \$ Emerging Market Sovereign and iBoxx \$ Liquid HY.

In the first approach we once again reallocate each Friday at close of business. We fully invested in the sector showing the strongest four-week average fund flow as a percentage of AuM based on the data published on Friday morning. Hence, this is a 'best-of-three' strategy. The benchmark is an equally weighted average of the three sectors with weekly adjustment.

As Chart 7 shows, this strategy would have outperformed the equally-weighted benchmark in six out of seven years since 2004. The excess return per calendar year would have been 2.58pp with a standard deviation of 3.9, yielding an information ratio of 0.66. On average, one would have switched 6.7 times per year between the different sectors.

CHART 7: Weekly 'best-of-three' strategy for fixed-income sectors based on relative strength of four-week average fund flows as a percentage of AuM

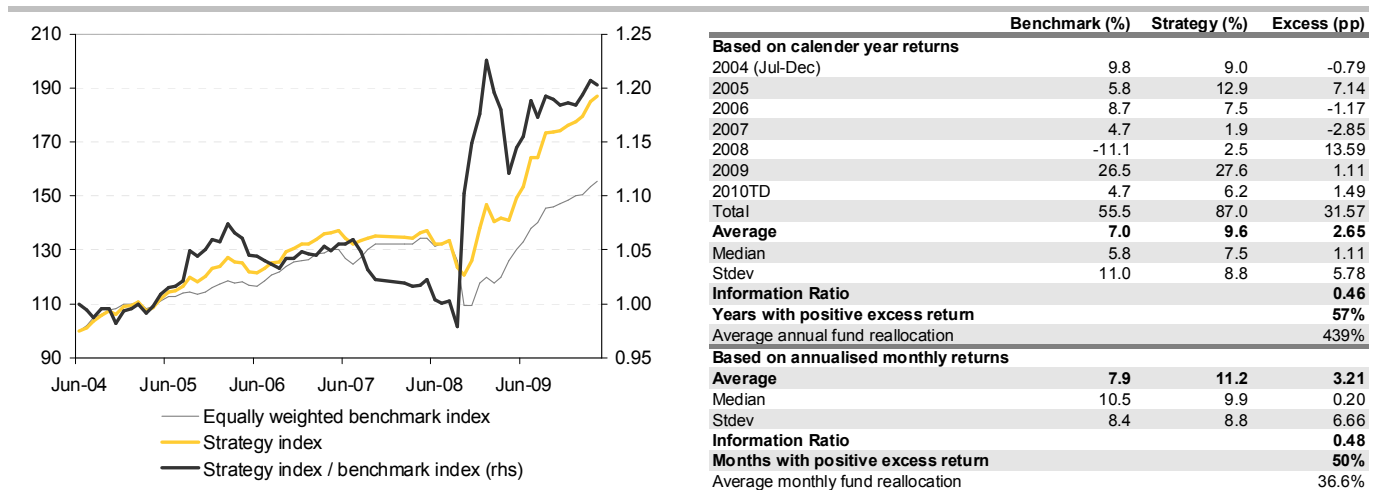


Source: EPFR, Datastream, Commerzbank Corporates & Markets

Our back-tested models do not include relevant transaction costs or taxes. Past performance may not be a reliable guide to future performance.

The second approach once again reallocates only at the end of each month based on the latest available information. The benchmark is thus equally-weighted with monthly adjustment. As Chart 8 shows, the results are somewhat weaker. Despite an excess return similar to that achieved with weekly reallocation, the information ratio is weaker due to the substantially higher standard deviation of excess returns. It is noteworthy though, that the average annual reallocation declined to 4.4 times, and that the annual strategy returns continue to have substantially lower volatility than the annual benchmark returns.

CHART 8: End-of-month 'best-of-three' strategy for fixed-income sectors based on relative strength of four-week average fund flows as a percentage of AuM



Source: EPFR, Datastream, Commerzbank Corporates & Markets

Our back-tested models do not include relevant transaction costs or taxes. Past performance may not be a reliable guide to future performance.

Despite the limited history available, we believe these results clearly suggest that weekly fund flow data also contain predictive power for sector allocation in the fixed-income space.

(3) Predictive power of fund flows for Equity vs Bond allocation

Last, but not least, we investigate the predictive power of fund flows for allocation across bonds and equities. The aim is to switch between global equities and global bonds and to measure the strategy against an equally-weighted benchmark of both. For global equities, we use the MSCI All Country total return index in dollars, and for global bonds, the EFFAS Global Market Cap Weighted total return index in dollars.

Equity vs bond allocation solely based on fund flows into both classes does not yield convincing results,...

Here, it is interesting to note that a pure 'best-of-two' strategy based on the four-week average fund flow as a percentage of AuM does not yield convincing results. However, using flows into risk assets such as EM equity, HY bonds and EM bonds versus flows into money market funds as an indicator of risk appetite, we can easily show highly successful strategies reallocating between equities and bonds.

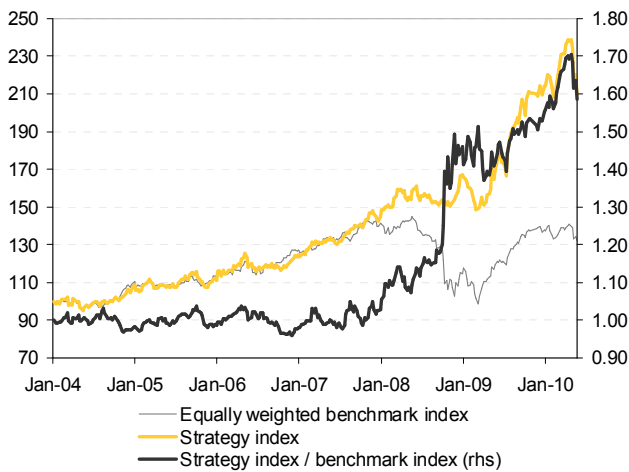
...but using flows into risk assets and money markets as an indicator of risk appetite, highly successful strategies can be derived

We aggregate EM equity fund flows, HY bond fund flows and EM bond fund flows into one measure of risk asset fund flows. Whenever the four-week average flow into risk assets is positive and, at the same time, the four-week average flow into money market funds⁴ is negative we are invested in global equities. Otherwise we are invested in global bonds. The first approach once again reallocates each Friday at close of business, the second at the end of each month.

The results of the weekly 'best-of-two' strategy versus an equally-weighted benchmark with weekly adjustment are shown in Chart 9. While the strategy moved basically in line with the benchmark during the equity bull market in 2004 to 2006, it significantly outperformed in 2007 to 2009. The strategy would have generated more than twice the benchmark return with an information ratio of close to 0.7. On average, one would have switched five times per year between bonds and equities.

⁴ Money market fund flows are only available from 2007 onwards. Before 2007, we are invested in global equities whenever the four-week average flow into risk assets is positive. Otherwise we are invested in global bonds.

CHART 9: Weekly 'best-of-two' strategy for global equities vs global bonds based on the four-week average fund flows as a percentage of AuM into risk assets and money market funds



	Benchmark (%)	Strategy (%)	Excess (pp)
Based on calendar year returns			
2004	10.5	8.7	-1.86
2005	1.8	2.2	0.39
2006	12.9	12.3	-0.65
2007	10.8	19.0	8.24
2008	-16.6	11.9	28.43
2009	17.2	29.2	12.04
2010TD	-3.9	-2.3	1.56
Total	32.2	109.4	77.23
Average	4.7	11.6	6.88
Median	10.5	11.9	1.56
Stdev	11.7	10.5	10.77
Information Ratio			0.64
Years with positive excess return			71%
Average annual fund reallocation			498%
Based on annualised weekly returns			
Average	5.0	12.3	7.29
Median	7.8	14.4	7.60
Stdev	10.9	11.5	10.72
Information Ratio			0.68
Weeks with positive excess return			54%
Average weekly fund reallocation			9.6%

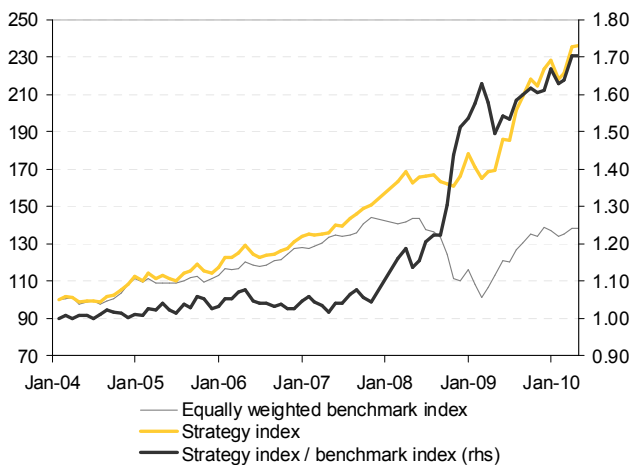
Source: EPFR, Datastream, Commerzbank Corporates & Markets

Our back-tested models do not include relevant transaction costs or taxes. Past performance may not be a reliable guide to future performance.

Monthly allocation between equities and bonds would have resulted in more than twice the benchmark return since 2004, with a Sharpe ratio of 1.3

Chart 10 shows that the results of the monthly 'best-of-two' strategy for global equities and global bonds are similarly convincing. The strategy would have generated an excess return of roughly 8pp per year before costs, and total return was more than twice the benchmark return with lower volatility. The strategy therefore clearly dominates the equally-weighted benchmark. Using money market returns as risk-free rate, the strategy has had a Sharpe ratio of 1.3 since 2004, while the benchmark only had a Sharpe ratio of 0.2. On average, funds would have to be switched between global equities and global bonds three times per year; so even including transaction costs, a significant excess return would have been earned.

CHART 10: End-of-month 'best-of-two' strategy for global equities vs global bonds based on the four-week average fund flows as a percentage of AuM into risk assets and money market funds



	Benchmark (%)	Strategy (%)	Excess (pp)
Based on calendar year returns			
2004	11.3	12.8	1.49
2005	1.8	3.8	2.04
2006	12.9	14.4	1.56
2007	10.8	14.6	3.72
2008	-18.2	16.1	34.37
2009	18.0	28.1	10.07
2010TD	1.2	3.3	2.09
Total	38.5	136.0	97.50
Average	5.4	13.3	7.90
Median	10.8	14.4	2.09
Stdev	12.0	8.4	12.06
Information Ratio			0.66
Years with positive excess return			100%
Annual fund reallocation			300%
Based on annualised monthly returns			
Average	5.7	14.3	8.54
Median	8.8	12.4	7.01
Stdev	9.9	9.5	8.22
Information Ratio			1.04
Months with positive excess return			60%
Monthly fund reallocation			25.0%

Source: EPFR, Datastream, Commerzbank Corporates & Markets

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These results clearly suggest that the direction of flows into or out of risk assets and into or out of money market funds contains information about future performance of equities versus bonds.

Summary

Based on backtests of simple investment strategies based solely on weekly fund flow information, this note shows that fund flow information can improve tactical asset allocation decisions. In particular, it shows that successful regional equity and fixed-income sector allocation strategies can be derived, based only on the relative strength of the four-week average fund flow as a percentage of AuM. Moreover, using the direction of the flows into or out of risk assets and into or out of money markets, highly successful bond-equity allocation strategies can be implemented.

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