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Equity Strategy

Predictive power of weekly fund flows

This note provides a guide to fund flow data in general and the EPFR data of our Weekly fund flows publication in particular. I analyse the predictive power of weekly fund flow data, both for the prediction of the equity market overall and for regional preferences.

Money flows are the ultimate drivers of asset prices. But it is not just that money flows drive performance, good performance of assets also tends to attract money flows and vice versa. Due to this interplay, fund flows tend to show some inertia and as such should contain some momentum information. Deutsche Bank has tracked and analysed fund flows in the Weekly fund flows note for 2 years now based on the data from Emerging Portfolio Fund Research.

This note provides a guide to fund flow data in general and the EPFR data of our *Weekly fund flows* publication in particular. It analyses the predictive power of weekly fund flow data, both for the direction of the equity market and for the relative performance of regions. We find stronger evidence for predictive power regarding the relative performance of regions than for the market overall.

The average first-order autocorrelation of weekly fund flows is 0.27 with emerging market equity flows showing autocorrelation up to 0.54, providing clear evidence of inertia in flows. The probability that a positive inflow follows a positive inflow is around 68%. A negative inflow follows a negative inflow with a 60% probability. We find no evidence of seasonal patterns in weekly fund flows.

Weekly fund flows and equity market performance show highly positive contemporaneous correlations. Correlations between performance and lagged fund flows tend to be positive too, providing evidence that performance leads flows. However, we do not find strong evidence that flows lead performance in the following weeks. Simple strategies that go long or short the asset based on the previous week's direction of flows do not generally work. Focusing on the changes in the direction of the flow rather than the direction of the flows does not improve the predictive power for the market direction either.

Including the Liquidity Pulse, a measure of rising or contracting liquidity momentum, helps predicting the market direction. Extremely strong/weak readings of the Liquidity Pulse should be seen as a negative/positive signal. We were able to develop profitable trading rules for the market based on the combination of the direction of the weekly fund flows, the direction of the average 4-week flow and the Liquidity Pulse.

Relative strength of fund flows for different regions contains explanatory power for subsequent relative performance of the regions. Excluding transaction costs, we find information ratios larger than 1. In our view, this suggests that the relative strength of fund flows does add value to models of regional equity allocation.

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DISCLOSURES AND ANALYST CERTIFICATIONS ARE LOCATED IN APPENDIX 1

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We would like to thank Fabian Goehring who assisted in the production of this report.

Predictive power of weekly fund flows

Introduction

Money flows are the ultimate drivers of asset prices. Against this backdrop it is not surprising to find that data on fund flows has increasingly gained popularity as it has become more widely available. But it is not just that money flows drive performance, good performance of assets also tends to attract fund flows and vice versa. Due to this interplay, fund flows tend to show some inertia and as such should contain some momentum information.

As Keynes said, the stock market is comparable to a beauty contest whereby the person picking the most popular candidate wins a prize: "It is not a case of choosing those [faces] which, to the best of one's judgment, are really the prettiest... We have reached the third degree where we devote our intelligence to anticipating what average opinion expects the average opinion to be"¹. As such, an investor is likely to gain by anticipating which assets, regions or sectors will become the popular choices, which not necessarily reflect the best fundamentals. To the extent that the trend in fund flows reflects investor action and behaviour, this is likely to shed more information on market expectations regarding various asset classes as well as regions and sectors.

Deutsche Bank has tracked and analysed fund flows in the *Weekly fund flows* note for 2 years now based on the data from Emerging Portfolio Fund Research (EPFR-www.epfr.com).

Aim and structure of this report

The aim of this report is twofold:

- First, to provide a guide to fund flow data in general and the EPFR data of our *Weekly fund flows* publication in particular.
- Second, to analyse the predictive power of weekly fund flow data, both for the prediction of the equity market direction and for the relative performance of regions.

Although the availability and quality of fund flow data has improved in recent years, typically no long-term history is available. This imposes some caveats on any empirical analysis of the information content of fund flows and our analysis is no exception here.

The report is structured as follows. The first chapter of this report contains a guide to the fund flow data used in the *Weekly fund flows* note. It describes the covered universe of funds, explains the calculation of fund flow data, tests for seasonalities in fund flows and analyses the autocorrelation and correlation characteristics of fund flows.

The second chapter analyses the relationship between fund flows and equity market performance. The lead and lag relationships between flows and performance are examined and simple trading strategies based on the direction of flows are developed and tested.

The third chapter introduces the Liquidity Pulse as a liquidity momentum measure and applies it in various trading strategies.

Finally, the fourth chapter looks at fund flows across regions and tests strategies that take over- and underweight positions in regions based on the relative strength of fund flows.

¹ John Maynard Keynes (1936), "General theory of Employment Interest and Money"

Key facts investors need to know

- Fund flows tracked by EPFR are based on funds domiciled across the globe as opposed to funds domiciled in the US only. We believe this improves the representativeness of the fund flow data. Weekly EPFR fund flows are available on Friday mornings based on Wednesday cob. The information provided in our *Weekly fund flows* note each Friday is therefore very timely.
- Fund flow data should be analysed as a % of total assets, rather than in absolute dollar terms, as differences of coverage across regions, changes in coverage, changes in exchange rate as well as the overall equity market development affect fund flows in absolute terms.
- We find no evidence of seasonal patterns in weekly fund flow. In our view fund flow data therefore do not require seasonal adjustment.
- Weekly fund flows show inertia as flows drive performance and performance leads flows. The average first-order autocorrelation coefficient is 0.27 with emerging market equity flows showing autocorrelation up to 0.54. The probability that a positive inflow follows a positive inflow is around 68%. A negative inflow follows a negative inflow with 60% probability.
- We observe a high (0.28) average contemporaneous correlation between weekly fund flows and equity market performance. We also find a strong positive correlation between performance and lagged fund flows, providing clear evidence that performance leads flows. We do not find strong evidence that fund flows lead performance in the following weeks.
- In the bear market until March 2003 as well as in sideways markets the direction of fund flows in one week (or in 4 weeks on average) carries predictive power for subsequent performance. In a rising market the direction of fund flows does not seem helpful and actually gives wrong signals on average. Hence, simple strategies that go long or short based on the previous week's direction of flows do not generally work.
- Focusing on the changes in the direction of the flow rather than the direction of the flows does not improve the explanatory power for the market direction.
- Including the Liquidity Pulse, a measure of rising or contracting liquidity momentum, proves helpful for predicting the market direction. We were able to develop trading rules for the market based on the direction of the weekly fund flows, the direction of the average 4-week flow and the Liquidity Pulse that have worked for the regions for which we have the longest history. Generally these strategies suggest to remain invested in the market unless all measures send a negative signal. Extremely strong/weak readings of the Liquidity Pulse should be seen as negative/positive signal. The May 2006 correction though was not predicted by these strategies.
- Our cross-sectional analysis shows that the relative strength of fund flows for different regions contains explanatory power for subsequent relative performance of the regions. Excluding transaction costs we find information ratios larger than 1. Even if results after transaction costs are unlikely to be that positive, this suggests in our view that the relative strength of fund flows does add value to models of regional equity allocation.
- Finally a word of warning. One needs to be careful with any major conclusions as the earliest data available is from January 2000. All data available for developed markets lies in the positive part of the current market cycle. In this market cycle cheap money was available globally due to low interest rates in Japan, Europe and the US, which lead to a strong appreciation in value of all asset classes. The data could be misleading and not reflect the true long-term fund flow picture. As no other data is available we can neither prove our findings to be right nor wrong. However but we believe the data shows relevant effects and can among other things be used to confirm economic or equity performance trends.

Guide to fund flow data

Basis of the fund flow data

Figure 1 shows the number of funds as well as the total assets of the funds in the EPFR universe. The universe tracks a total of 8817 funds with a different geographical focus and across different asset classes. 7725 of these funds are equity funds.

Figure 1: Size of funds and availability of flow information

02/08/2006	Total assets (\$m)	Number of Funds tracked in Region	Available Since
International Equity Funds	466,729	1425	10.11.2000
US Equity Funds	1,133,325	3170	30.04.2003
Western Europe Equity Funds	200,538	1115	02.01.2002
Japan Equity Funds	63,836	618	02.01.2002
Total Developed Markets Equity Funds	1,864,428	6,328	
Global Emerging Market Equity Funds	119,680	587	20.10.2000
Eastern Europe/Middle East/Africa Equity Funds	35,735	181	20.10.2000
Latin America Equity Funds	16,575	88	20.10.2000
Asia Pacific Ex-Japan Funds	79,338	541	20.10.2000
Total Emerging Markets Equity Funds	251,327	1,397	
Total Equity Funds	2,115,755	7,725	
International Bond Funds	138,075	421	05.01.2001
Corporate High Yield Funds	60,752	329	17.11.2004
Emerging Markets Debt Funds	41,098	342	05.01.2001
Total Bond Funds	239,925	1,092	

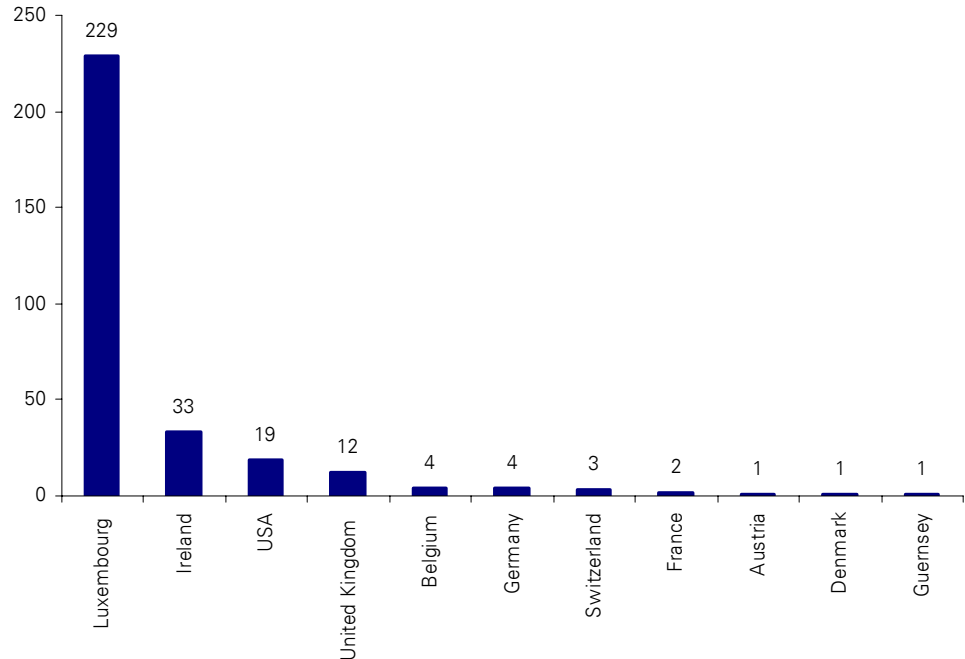
Source: Deutsche Bank Equity Strategy / EPFR

Fund characteristics

- **Most of the funds under coverage are long only funds**, and only a minority of the included hedge funds has short positions, but these are insignificant relative to total investment value.
- **All the funds included are pure plays** – equity funds invest only in equities, and bond funds invest only in debt securities, and not a mixture of both.
- **The funds are not generally exchange traded.** Data on the proportion of ETFs to non-exchange traded funds is limited, but according to EPFR it is negligible.
- **Investors are a mix of retail and institutional investors.** EPFR estimates that 70% of them are institutional, the biggest ones being pension funds and insurance companies. Institutional investors account for most of those investing in emerging market funds, but we see a higher participation of retail investors for Western Europe and US equity funds. Unfortunately we do not have a more accurate breakdown of the region where institutional investors dominate and vice versa.

EPFR tracks mutual funds on a global basis compared to some other providers of flow data, and presents the flow of funds into geographical asset classes irrespective of domicile. For instance, the flows into Western Europe equity funds represent the amount deposited or withdrawn in funds investing in Western European equities irrespective of where the funds are located. We believe that this data is therefore more representative compared to other data available which tend to only cover funds located in the US.

Figure 2 illustrates the domicile of funds investing in Western European equities. The domicile of funds investing in other regions is shown in Appendix A (see page 25). Appendix A also includes a breakdown of various funds' geographic focus.

Figure 2: No. of funds investing in Western European equities (by domicile)

Source: Deutsche Bank Equity Strategy / EPFR

Calculation of flows

On a weekly basis we obtain the raw data from EPFR, who in turn obtain it each Wednesday from the respective fund managers. EPFR releases the data on Thursday night, hence the *Weekly fund flows* note published on each Friday contains very timely information.

The calculation of the weekly net flow is as follows:

- Assets BoW = Total fund assets beginning of week
(as of prior Wednesday's market close)
- Assets EoW = Total fund assets end of week
(as of current Wednesday's market close)
- Weekly Portfolio Change = (Assets BoW) x (Weekly performance of fund)*
*change in NAV per share including any dividend distributions
- Weekly net flow in local currency = Assets EoW – Assets BoW – Weekly Portfolio Change
- Weekly net flow in \$ = Weekly net flow in local currency x Average weekly forex
- Weekly flow as % of NAV = Weekly net flows in dollars/Assets BoW in dollars using beginning of the week exchange rate

Let's assume a Western European equity fund which reports its data to EPFR in euros.

Figure 3: Hypothetical fund flow data from a Western European fund in euros

Assets BoW €	Assets EoW €	Forex BoW	Forex EoW	Average Forex	Weekly Fund Performance
500	550	1.2	1.26	1.23	6.00%

Source: Deutsche Bank

Following the assumptions in Figure 3:

- Weekly Portfolio Change: Euro500m x 6% = Euro30m
- Weekly Net flow: [Euro550m – Euro500m – Euro30m] = Euro20m
- Weekly Net flow in \$ = Euro20m x \$/Euro1.23 = \$24.6m
- Weekly flow as % of NAV: [\$24.6m/(Euro500m x \$/Euro1.2)]= 4.1%

We note that EPFR uses the average weekly exchange rate to convert the reported figure into dollars.

Fund flow data table

The flow data table which features in our *Weekly fund flows* note contains information on weekly flows, the 4-week average flow as well as the year-to-date net flow for all funds in our universe. The 4-week moving average of the flows smoothes the data as the weekly flows can at times be quite volatile. Flow information is provided in absolute dollars and as a percentage of total assets. The latter improves the comparability of the flows across regions.

Figure 4: Flow data across various asset classes

02/08/2006	Total assets (NAV)		1-week flow		4-week average flow		Cum. YTD flow	
	\$m	% of NAV	\$m	% of NAV	\$m	% of NAV	\$m	% of NAV
International Equity Funds	466,729	0.20	932	0.10	487	0.10	18,921	4.23
US Equity Funds	1,133,325	0.09	1,024	-0.10	-1,091	-0.10	6,352	0.56
Western Europe Equity Funds	200,538	0.00	-5	-0.07	-150	-0.07	5,401	2.77
Japan Equity Funds	63,836	-0.13	-80	-0.06	-41	-0.06	2,994	4.92
Total Developed Markets Equity Funds	1,864,428	0.10	1,871	-0.04	-794	-0.04	33,668	1.83
Global Emerging Market Equity Funds	119,680	0.01	8	-0.19	-229	-0.19	5,139	4.49
Eastern Europe/Middle East/Africa Equity Funds	35,735	0.83	284	0.12	42	0.12	-1,024	-2.78
Latin America Equity Funds	16,575	0.67	108	0.63	105	0.63	1,955	13.37
Asia Pacific Ex-Japan Funds	79,338	0.14	108	0.00	-2	0.00	10,393	15.07
Total Emerging Markets Equity Funds	251,327	0.21	509	-0.03	-83	-0.03	16,463	6.70
Total Equity Funds	2,115,755	0.11	2,380	-0.04	-877	-0.04	47,682	2.29
International Bond Funds	138,075	0.01	15	-0.03	-36	-0.03	6,612	5.03
Corporate High Yield Funds	60,752	0.20	121	0.07	44	0.07	-2,118	-3.37
Emerging Markets Debt Funds	41,098	0.41	165	-0.08	-32	-0.08	2,606	6.77
Total Bond Funds	239,925	0.14	300	0.00	-7	0.00	7,100	2.99

Source: Deutsche Bank Equity Strategy / EPFR

Focus on fund flow as a proportion of total assets

We recommend analysing fund flow data as a % of total assets, rather than in dollar terms, because it provides a better comparison between regions:

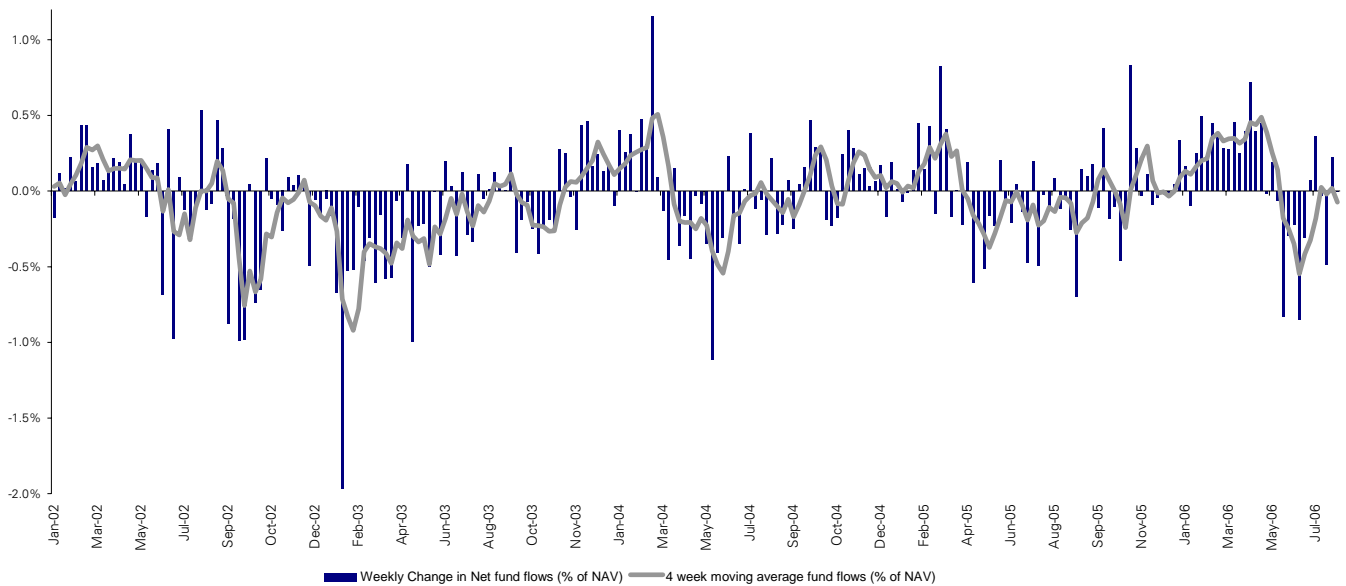
- First, funds investing in emerging markets, for instance, tend to be smaller than those investing in developed markets such that weekly flows in dollar terms do not accurately reflect the flow momentum across regions.
- Second, the size of net flows (in dollars) tends to change with the development/index performance of the markets which they track. Third, EPFR has widened its coverage of fund flows over time. For a better historical comparison, it

is therefore necessary to look at fund flows as a percentage of the covered assets rather than in absolute terms.

- Third, it is worth noting that the flows are provided in dollar terms and are therefore dependant on foreign exchange movements. As the dollar strengthens or weakens relative to the funds' respective local currencies, we could see some fluctuations in the overall funds which are not the result of equity investor behaviour.

As an example, Figure 5 shows the trend of flows as percentage of NAV for Western European equities (which goes back as far as we have data (January 2002)). As we can see, the absolute size of flows in percent of total assets has been reasonably stable over the past 5 years.

Figure 5: Western Europe fund flows (flows as % of NAV)

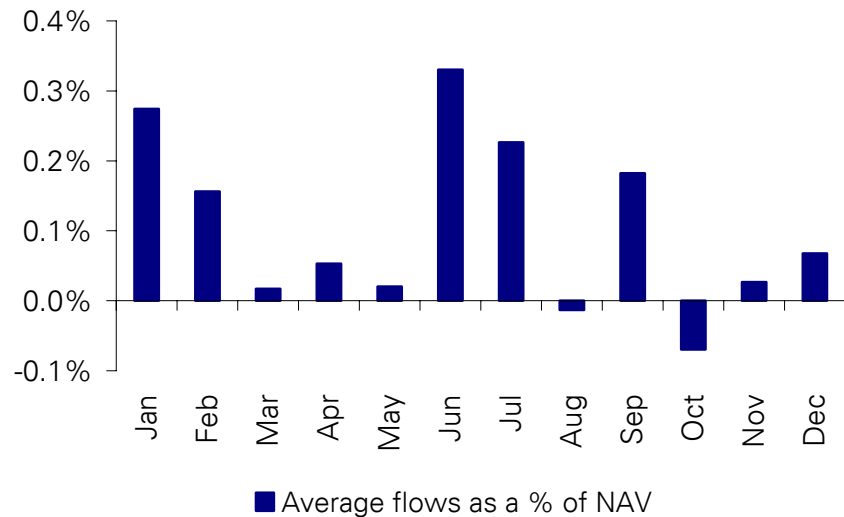


Source: Deutsche Bank Equity Strategy / EPFR

Do seasonalities exist in fund flows?

We look at whether the fund flow data exhibit any seasonal patterns. If they do, they will require a seasonal adjustment prior to the analysis. To that effect, we have looked for potential seasonal effects such as the rush in January and the sell off in the summer. We also looked for seasonal patterns in the weeks at the end and beginning of each quarter and also at the beginning and end of each month. Another seasonal pattern which we expected to see for the US data was that of tax loss selling. The American Fiscal year starts at the 1st of October and ends on the 30th of September, and as such we should be observing a consistent outflow in September as investors close their loss-making equity investments to claim a tax rebate. Instead, we observe a net positive flow in September.

The fund flow data does not unambiguously support any seasonal pattern. While this may be partly due to the short history of the data, we also detect no sign of seasonality for emerging markets for which we have a longer data history (since 2000).

Figure 6: Average monthly fund flows for the US

Source: Deutsche Bank Equity Strategy / EPFR

Autocorrelation of fund flows

We have already discussed above that one should expect some inertia in fund flows as fund flows should positively impact performance and positive performance should attract fund flows subsequently. Indeed, looking at the autocorrelation between fund flows on a weekly basis, the autocorrelation from one week to the next is generally high. Inflows or outflows in any one week are likely to be followed by inflows or outflows in the following week, suggesting that fund flows can act as a gauge of investor sentiment. According to our analysis, the highest first-order autocorrelation was for funds investing in EMEA equities, with a correlation coefficient of 0.54, compared to an average of 0.27.

We also calculate the probability that a positive flow in any given week is followed by a positive flow and the probability that it is followed by a negative flow, and vice versa. The Figure 7 demonstrates that an inflow of funds in one week in any given region is much more likely to be followed by an inflow (rather than by an outflow) in the following week. The average probability for an inflow to be followed by an inflow in the next week is 68%, the probability that an outflow in one week is followed by an outflow the next week is 60%.

Figure 7: First-order autocorrelation and probability of changes in directions of flows

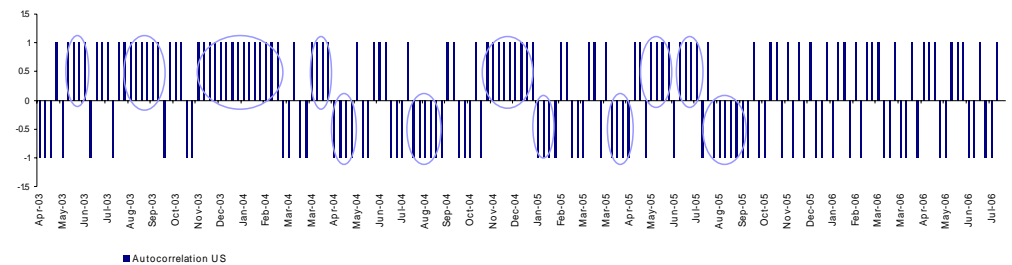
Region	No. of weeks	First order autocorrelation	Prob. pos flow follows pos flow	Prob. neg flow follows pos flow	Prob. pos flow follows neg flow	Prob. neg flow follows neg flow
Asia ex Japan	303	0.47	73.2%	26.8%	42.0%	58.0%
Latin America	303	0.46	69.6%	30.4%	34.0%	66.0%
EMEA	303	0.54	74.6%	25.4%	38.0%	62.0%
Emerging Markets	303	0.04	57.1%	42.9%	40.6%	59.4%
Western Europe	240	0.31	61.5%	38.5%	36.1%	63.9%
Japan	240	0.48	78.5%	21.5%	32.6%	67.4%
USA	171	-0.04	63.2%	36.8%	48.0%	52.0%
International	300	-0.14	64.8%	35.2%	46.7%	53.3%
Average		0.27	67.8%	32.2%	39.8%	60.2%

Source: Deutsche Bank Equity Strategy / EPFR

The Figures 8, 9 and 10 illustrate the presence of autocorrelation in the fund flows at a regional level. We assign a value of +1 if the current week has a net inflow into the region and a value of -1 if the region experienced a net outflow during the current week. We highlighted periods in the graphs where 4 or more consecutive weeks of inflows or outflows have occurred.

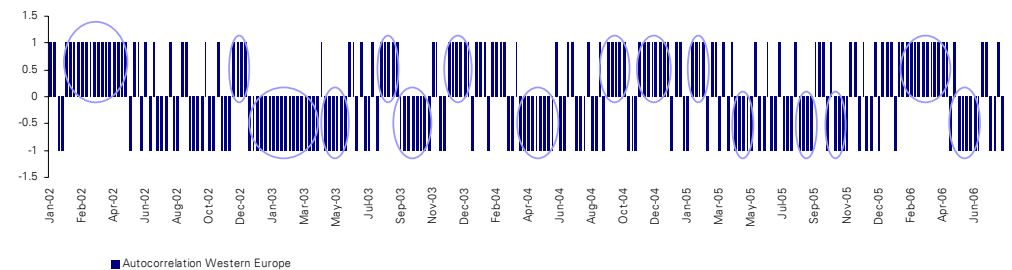
For Western European and Emerging Market fund flows the autocorrelation remains high until July 2006. In the US however, it seems to have stopped in the first week of October 2005. Since then, we have not had more than 3 consecutive weeks of net inflows or outflows of funds in the US.

Figure 8: US fund flow directions



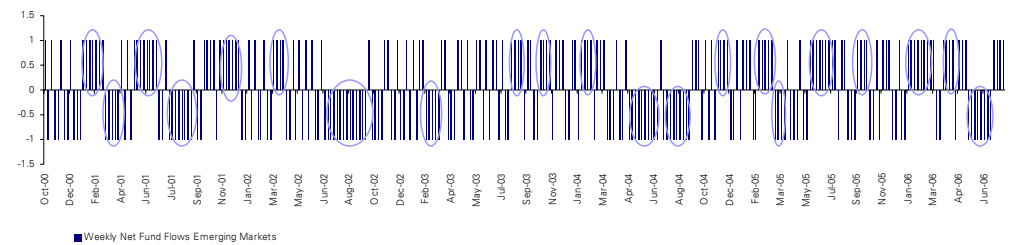
Source: Deutsche Bank Equity Strategy / EPFR

Figure 9: Western Europe fund flow directions



Source: Deutsche Bank Equity Strategy / EPFR

Figure 10: Total Emerging Market fund flow directions



Source: Deutsche Bank Equity Strategy / EPFR

Correlation between fund flows

Having analysed the autocorrelation characteristics of fund flow data, let us now have a look at the correlation between fund flows for different asset classes and regions. For example, one would typically expect a high correlation between emerging market equity and emerging market bond flows, and indeed the observed correlation is 0.44 based on 1-week flows (see Figure 11) and even 0.57 based on 4-week average flows (see Figure 12). Generally we find positive correlations, even between International Bond funds, the safest asset class, and Emerging Market Equity funds, the most risky asset class. This is a finding one would typically not expect. These results hold true for 1-week flows as well as for average 4-week flows.

The problem once again is the limited history. Most of the data available is from the positive part of the current market cycle. In this market cycle cheap money was available globally due to low interest rates in Japan, Europe and the US, which led to a strong inflow into and strong appreciation in value of all asset classes. The data could be misleading and not reflect the true long-term fund flow picture.

The only fund class for which the flows seem to be uncorrelated with other flows are US equities. The second lowest correlations can be found for Japanese fund flows.

Figure 11: Correlation of weekly fund flows

	Asia PEJ Equity	Latam Equity	EMEA Equity	Total EM Eq.	Japan Equity	Europe Equity	US Equity	Intern. Equity	Total DV Eq.	Total Equity	Intern. Bonds	EM Bonds	High yield	Total Bonds
Emerging Market Equities	0.42	0.36	0.29	0.85	0.21	0.22	0.09	0.29	0.23	0.50	0.18	0.30	0.27	0.37
Asia Pacific Ex-Japan Equities		0.52	0.50	0.77	0.35	0.48	0.24	0.48	0.48	0.68	0.29	0.35	0.37	0.56
Latin America Equities			0.52	0.63	0.26	0.31	-0.01	0.15	0.18	0.42	0.27	0.34	0.26	0.39
EMEA Equities				0.61	0.34	0.35	0.16	0.22	0.36	0.54	0.33	0.47	0.19	0.44
Total Emerging Markets Equities					0.36	0.41	0.15	0.42	0.40	0.69	0.30	0.44	0.32	0.50
Japan Equities						0.26	0.01	0.26	0.26	0.31	0.15	0.04	0.11	0.14
Western Europe Equities							0.12	0.42	0.48	0.58	0.09	0.21	0.34	0.43
US Equities								0.26	0.85	0.72	-0.01	0.21	0.08	0.00
International Equities									0.66	0.66	0.16	0.22	0.22	0.42
Total Developed Markets Equities										0.94	0.08	0.34	0.21	0.22
Total Equities											0.17	0.49	0.28	0.37
International Bonds												0.36	0.00	0.61
Emerging Markets Debt													0.28	0.62
Corporate High Yield														0.71

Source: Deutsche Bank Equity Strategy / EPFR

Figure 12: Correlation of 4-week average fund flows

	Asia PEJ Equity	Latam Equity	EMEA Equity	Total EM Eq.	Japan Equity	Europe Equity	US Equity	Intern. Equity	Total DV Eq.	Total Equity	Intern. Bonds	EM Bonds	High yield	Total Bonds
Emerging Market Equities	0.63	0.59	0.47	0.87	0.25	0.42	0.17	0.17	0.41	0.69	0.23	0.46	0.52	0.57
Asia Pacific Ex-Japan Equities		0.67	0.63	0.89	0.40	0.62	0.27	0.47	0.57	0.80	0.41	0.43	0.49	0.73
Latin America Equities			0.63	0.79	0.30	0.43	-0.04	0.34	0.30	0.58	0.44	0.48	0.33	0.51
EMEA Equities				0.75	0.40	0.43	0.11	0.39	0.44	0.63	0.48	0.62	0.25	0.60
Total Emerging Markets Equities					0.40	0.57	0.17	0.39	0.52	0.81	0.41	0.57	0.47	0.68
Japan Equities						0.30	-0.06	0.43	0.29	0.32	0.23	0.02	0.07	0.11
Western Europe Equities							0.20	0.49	0.64	0.73	0.19	0.17	0.35	0.60
US Equities								0.37	0.77	0.58	0.16	0.22	0.07	0.04
International Equities									0.61	0.50	0.43	0.28	-0.09	0.18
Total Developed Markets Equities										0.92	0.23	0.41	0.22	0.41
Total Equities											0.30	0.60	0.37	0.60
International Bonds												0.51	-0.13	0.44
Emerging Markets Debt													0.34	0.79
Corporate High Yield														0.70

Source: Deutsche Bank Equity Strategy / EPFR

Fund flows and equity market performance

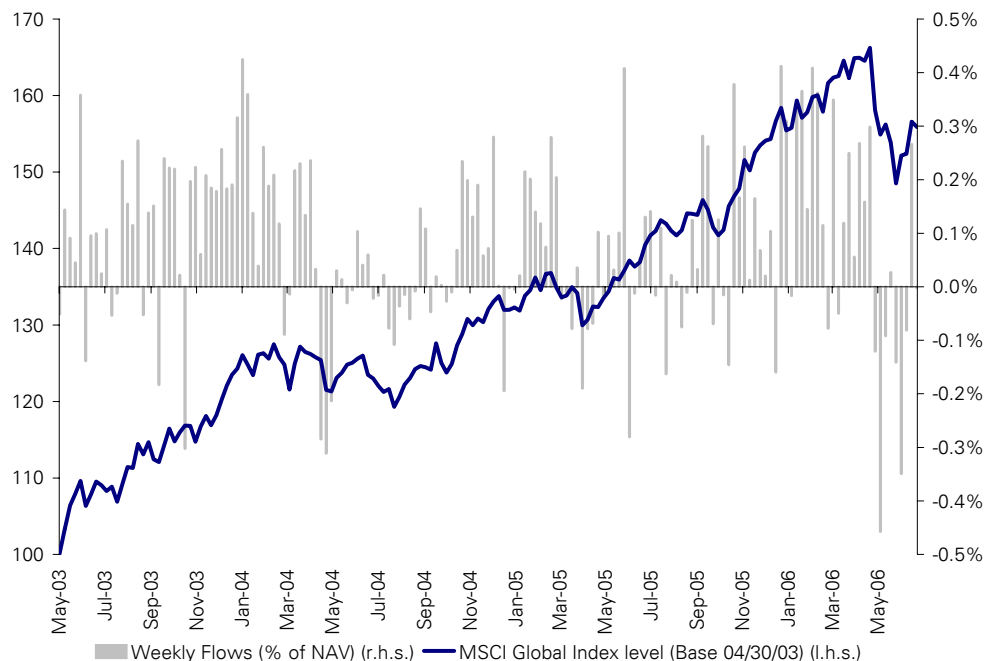
Introduction

In this chapter we seek to establish the value added by fund flows in explaining equity market movements. First we examine the correlation between fund flows and the performance of the respective MSCI indices, and assess whether the fund flow patterns lead or lag equity market performance. We also look at whether the change in the direction of the fund flows is an indicator for subsequent performance and can be used in trading strategies.

Do fund flows predict equity market performance?

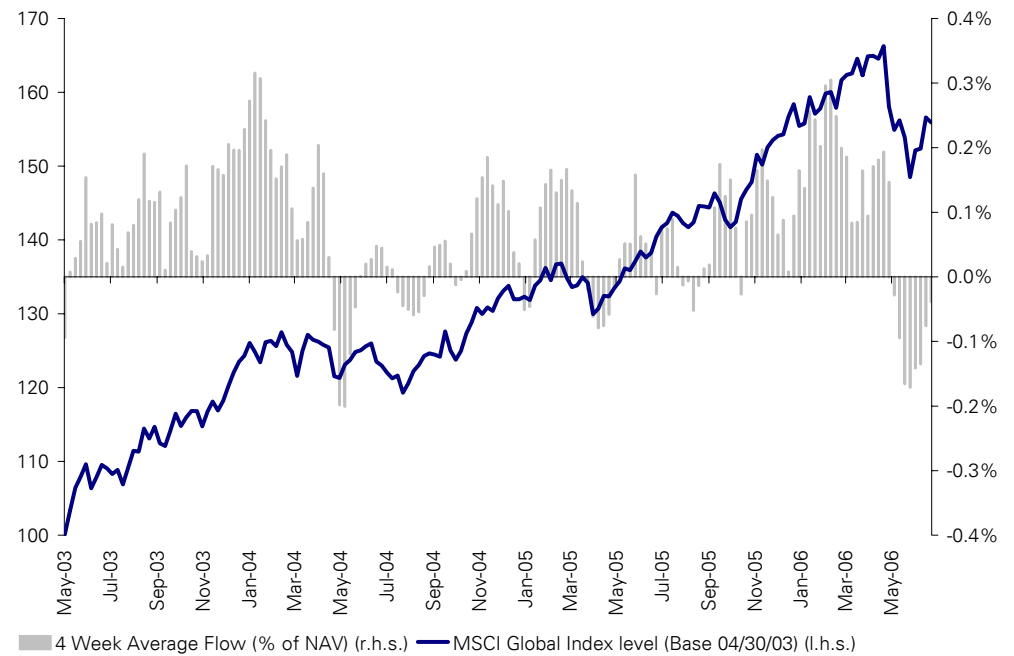
We compare the fund flow data with the performance of the respective MSCI indices in order to establish its predictive power. The Figures 13, 14, 15 and 16 depict this relationship. The first two charts show the relationship between the total global weekly equity flows as percentage of NAV compared to the global MSCI Equity Index and the global 4-week moving average flows as percentage of NAV compared to the global MSCI Equity. The global data is an aggregation of all the flows we have across the regions in our universe. The next two charts do the same for the total emerging market data, which is the aggregation of the flows into EMEA, Asia ex-Japan, and Latin America. From the charts it seems that a rising equity market index is strongly correlated with inflows and vice versa. This relationship is particularly strong in the fund flows of Europe, GEM, the US and Japan (not shown here).

Figure 13: Total global equity weekly flows as % of NAV vs. global MSCI Index



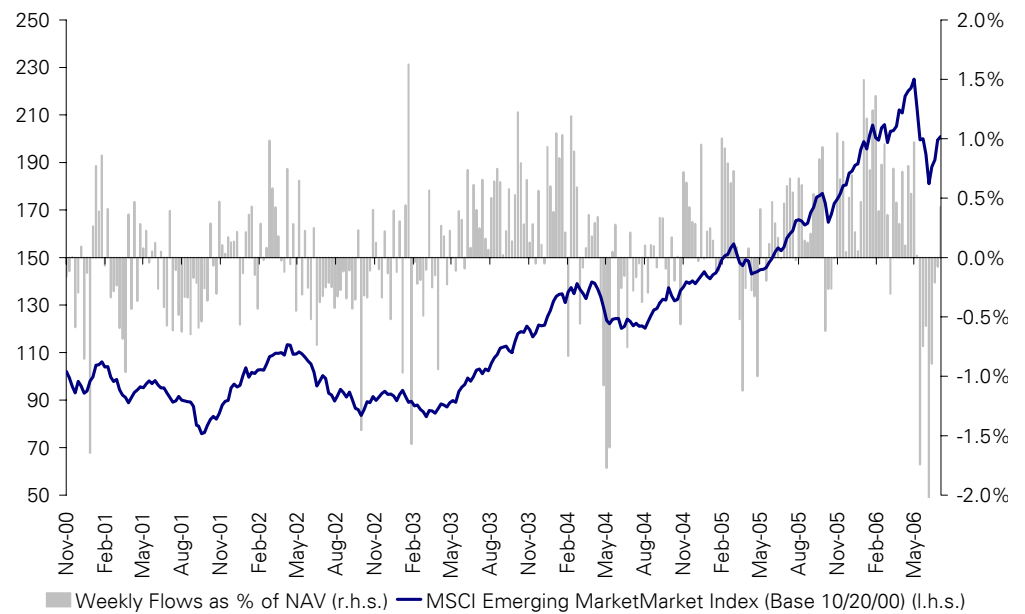
Source: Deutsche Bank Equity Strategy / EPFR, Factset

Figure 14: Total global equity 4-week moving average flows as % of NAV vs. global MSCI Index



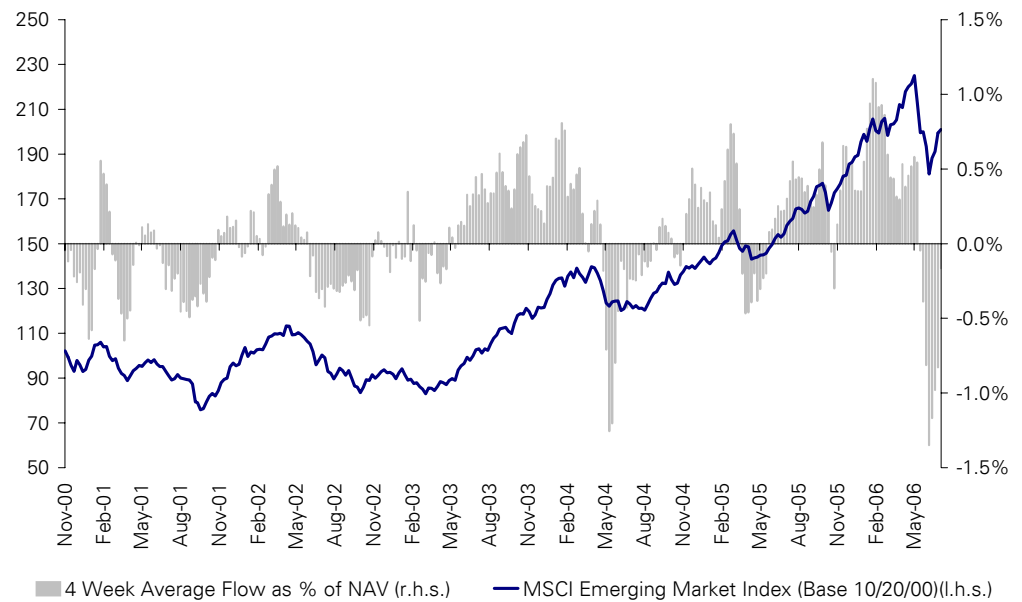
Source: Deutsche Bank Equity Strategy / EPFR, Factset

Figure 15: Total Emerging Markets weekly flows as % of NAV vs. Emerging Market MSCI index



Source: Deutsche Bank Equity Strategy / EPFR, Factset

Figure 16: Total Emerging Markets 4-week moving average flows as % of NAV vs. Emerging Markets MSCI Index

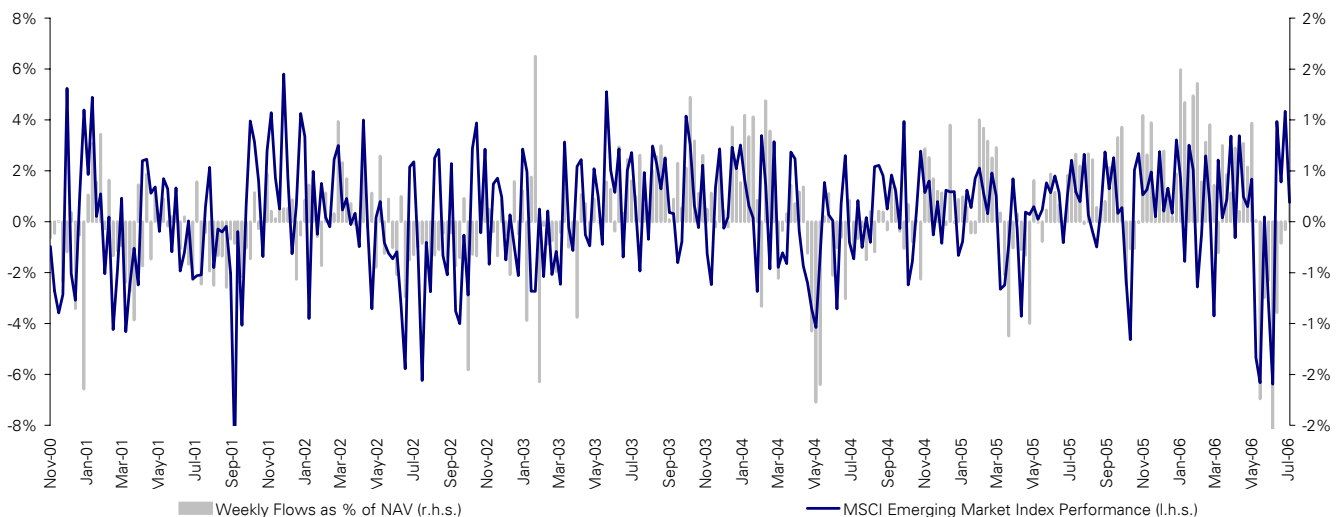


Source: Deutsche Bank Equity Strategy / EPFR, Factset

Correlation between weekly equity market performance and weekly flows

Figure 17 further illustrates the relationship between index performances and the weekly flows as percentage of NAV. It compares the weekly total Emerging Market flow in % of NAV with the contemporaneous weekly GEM MSCI Index performance.

Figure 17: Total Emerging Markets weekly flows as % of NAV vs. Emerging Markets MSCI Index performance



Source: Deutsche Bank Equity Strategy / EPFR, Factset

The charts seem to show a strong correlation between fund flows and the respective MSCI equity indices. In order to analyse this relationship we calculate the contemporaneous correlation coefficient of weekly fund flows and weekly performance as well as correlation coefficients with flows leading or lagging performance by one or two weeks. The results are shown in the Figure 18.

Figure 18: Correlation of weekly fund flows as % of NAV with equity market performance

Correlations	Fund Flow lag or lead in weeks					Number of Observations
	Fund Flows lag 2 weeks	Fund Flows lag 1 week	Same week	Fund Flows lead 1 week	Fund Flows lead 2 weeks	
Asia ex Japan	0.29	0.34	0.35	0.07	-0.02	302
Latin America	0.29	0.54	0.22	-0.04	0.06	302
EMEA	0.23	0.43	0.26	0.00	0.01	302
Western Europe	0.05	0.17	0.32	-0.14	0.05	239
Japan	0.22	0.32	0.31	0.02	0.03	239
USA	0.06	0.16	0.15	-0.04	0.07	170
International	0.12	-0.08	0.34	-0.02	-0.02	299
Average	0.18	0.27	0.28	-0.02	0.02	

Source: Deutsche Bank Equity Strategy / EPFR, Factset

Figure 19: Correlation of 4-Week moving average fund flows as % of NAV with equity market performance

Correlations	Fund Flow lag or lead in weeks					Number of Observations
	Fund Flows lag 2 weeks	Fund Flows lag 1 week	same week	Fund Flows lead 1 week	Fund Flows lead 2 weeks	
Asia ex Japan	0.35	0.25	0.15	0.04	0.01	299
Latin America	0.35	0.27	0.09	0.02	0.07	299
EMEA	0.31	0.24	0.09	-0.02	-0.05	299
Western Europe	0.14	0.14	0.06	-0.08	-0.06	236
Japan	0.29	0.22	0.13	0.02	0.05	236
USA	0.18	0.18	0.07	-0.03	0.00	167
International	0.18	0.11	0.20	-0.03	-0.01	296
Average	0.26	0.20	0.11	-0.01	0.00	

Source: Deutsche Bank Equity Strategy / EPFR, Factset

Based on the weekly fund flows we find that the contemporaneous correlation is highest with an average of 0.28. We also find a relatively strong positive correlation between performance and lagged fund flows, providing clear evidence that performance attracts flows. Even with a 2-week lag, flows tend to follow performance. Regarding the question whether flows lead performance in the following weeks, we do not find strong evidence.

Overall, this confirms our earlier hypothesis that there is a solid relationship between equity market performance and fund flows. Yet we cannot draw clear conclusions on the lag or lead relationship between fund flows and equity index performance with certainty, as the correlation coefficients are not significant enough and we have a limited number of historic observations.

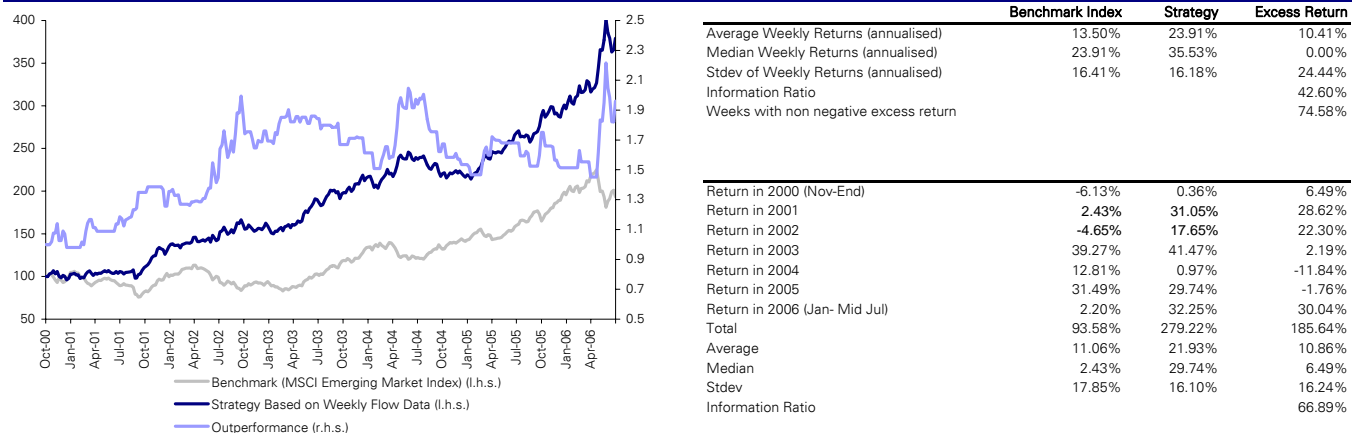
Trading strategies based on the direction and the change in the direction of fund flows

Trading strategy based on direction of weekly fund flows in the same week

To illustrate how the data can add value, we set up a hypothetical trading strategy and assume that at each point in time we know the direction of the flows in the following week. Obviously, this strategy cannot be applied in practice, because it is based on fund flow data and index performance data from the same week. Nonetheless, it indicates the strength of the relation between fund flows and performance.

We apply the strategy to the Emerging Markets data. The strategy goes short the emerging markets MSCI Index when the weekly flows are negative and long the index when the weekly flows are positive. We follow this strategy from the beginning of 2000 until the end of July 2006. Benchmark and the strategy are indexed at the starting date. The benchmark gained 94% over this period while the trading strategy gained a stunning 279%— an out-performance of 186pp over a time span of five and a half years. This represents an average annual out-performance of roughly 11pp. The information ratio of this strategy is around 67%.

Figure 20: Total emerging markets trading strategy based on weekly flows data vs. benchmark



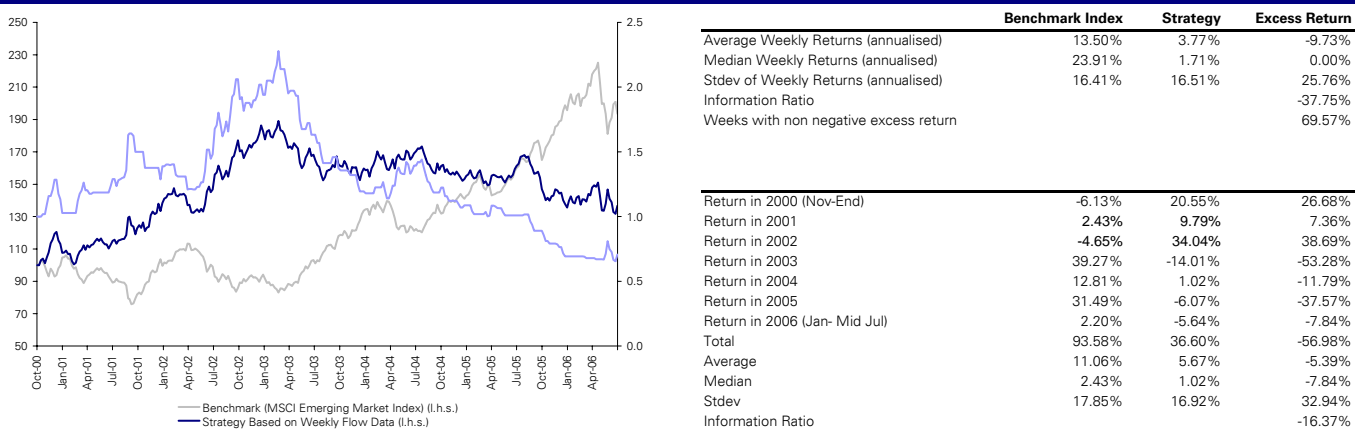
Source: Deutsche Bank Equity Strategy / EPFR, Factset

Trading strategy based on direction of weekly fund flows in the previous week

Given the strong contemporaneous relation between weekly performance and weekly fund flows as well as the strong inertia of direction of fund flows, we apply the same strategy as in the one above, but now using the direction of the fund flows in one week as a predictor of equity market performance in the following week. If the weekly fund flows are negative, the strategy goes short the index the next week and vice versa. As above, we apply this strategy to the Total Emerging Markets Fund flow.

The results shown in Figure 21 are rather disappointing. The strategy has strongly outperformed the bear market until March 2003 but has consistently underperformed thereafter. The strong positive contemporaneous relationship between fund flows and performance in combination with the strong inertia in the direction of the fund flows seem not to be sufficient to add value applying this simple strategy. This confirms the results suggested by the non-existing correlation between fund flows and subsequent performance discussed earlier. Applying this strategy to the other regions did not yield significantly different results.

Figure 21: Strategy based on weekly fund flows for Total Emerging Markets



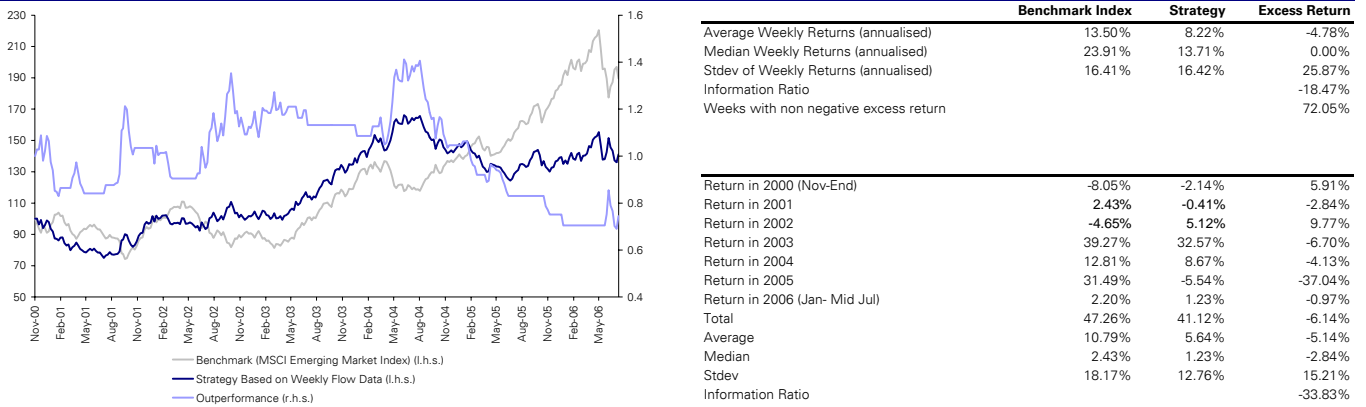
Source: Deutsche Bank Equity Strategy / EPFR, Factset

Trading strategy based on the direction of 4-week average flow in the previous week

The next strategy follows the same principle but is based on the 4-week moving average of the flows. If the 4-week moving average is negative, the strategy goes short the equity index in the following week and vice versa. We show the results for the strategy based on the Total Emerging Markets fund flow and MSCI emerging markets Index. The results for this strategy

in Figure 22 are similarly unconvincing as those of the previous strategy. Also for the other regions this strategy does not work.

Figure 22: Strategy based on 4-week moving average flows for Total Emerging Markets



Source: Deutsche Bank Equity Strategy / EPFR, Factset

The examples above suggest that the direction of the fund flows in one week (or in 4 weeks on average) cannot thoroughly be used as a reasonable indicator for subsequent performance. In the bear market until March 2003 as well as in phases of sideways markets the direction of fund flows tends to carry some predictive power for subsequent performance. In a rising market, though, the direction of fund flows seems less helpful.

Strategies based on the change in the direction of the weekly fund flow

So far, the tested strategies have reacted to each weekly observation. Let us now focus on signals derived from the change in the direction of flows only. Figure 23 shows the average equity performance in the week when a change in the direction of flow occurs as well as in the following week, both for each change in the direction of flows as well as for changes in direction of flows following four consecutive weeks of flows in the same direction.

Figure 23: Market returns following changes in the direction of fund flows

	Average Weekly MSCI Performance (since beginning of flow data stream)	Flow changes from outflow to inflow			Average Market Performance in the following week as we observe an inflow after 4 consecutive weekly outflows
		Average Market Performance in the same week as any flow change from outflow to inflow is observed	Average Market Performance in the same week as an inflow is observed after 4 consecutive outflows	Average Market Performance in the following week as an inflow follows an outflow	
US	0.24%	0.62%	1.31%	0.30%	-0.35%
Western Europe	0.08%	1.07%	1.95%	-0.17%	-0.26%
Emerging Markets	0.26%	0.53%	-1.37%	0.13%	-0.42%

	Average Weekly MSCI Performance (since beginning of flow data stream)	Flow changes from inflow to outflow			Average Market Performance in the following week as we observe an outflow after 4 consecutive weekly inflows
		Average Market Performance in the same week as any flow change from inflow to outflow is observed	Average Market Performance in the same week as an outflow is observed after 4 consecutive inflows	Average Market Performance in the following week as an outflow follows an inflow	
US	0.24%	0.31%	0.01%	0.12%	0.43%
Western Europe	0.08%	-0.59%	-1.13%	0.24%	-0.17%
Emerging Markets	0.26%	-0.36%	-0.24%	0.34%	-0.13%

Source: Deutsche Bank Equity Strategy / EPFR, Factset

For all regions the average performance in weeks where an outflow turns into an inflow is significantly above the unconditional average weekly performance. Apart from the emerging markets this is even truer for the case that an inflow occurs after four consecutive outflows. However, for the week following the change in direction we do not find any consistent and significant outperformance. The results for the case where an inflow turns into an outflow are similar. Overall this means, that focusing on the changes in the direction of the flow rather than the direction of the flows themselves do not improve the explanatory power.

Liquidity Pulse – a measure of liquidity momentum

Introduction

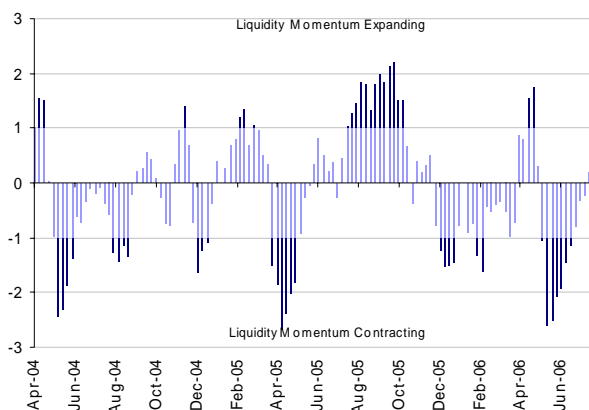
The results above suggest that neither the direction of flows in one week (resp. of the 4-week average) nor the change in the direction of flows, on their own, are sufficient to predict next week's equity market performance. We therefore have to test measures that go beyond simply looking at the direction of the flows. Liquidity momentum, i.e. a measure of rising or contracting liquidity might prove helpful. Flows might still be positive (negative) but the size of the inflows (outflows) might already ease, indicating a declining (rising) investor conviction. To measure liquidity momentum we have introduced the liquidity pulse.

Calculation of the Liquidity Pulse

The liquidity pulse compares the size of the current flow (4-week average as % of NAV) with the average size of the flow in the last 13 weeks. The relative size is given in standard deviation from the mean. As a momentum indicator it gauges investor's confidence in certain regions and the movement of momentum in those regions. A high liquidity pulse indicates a liquidity momentum expansion as the asset class in question is experiencing net inflow for many consecutive weeks. This is an indication of above-average investor confidence in a certain region and generally indicates a strong performance for equity markets in the respective region. A liquidity pulse which is steadily increasing indicates an increase in the amount of fund inflows into the region, and vice versa.

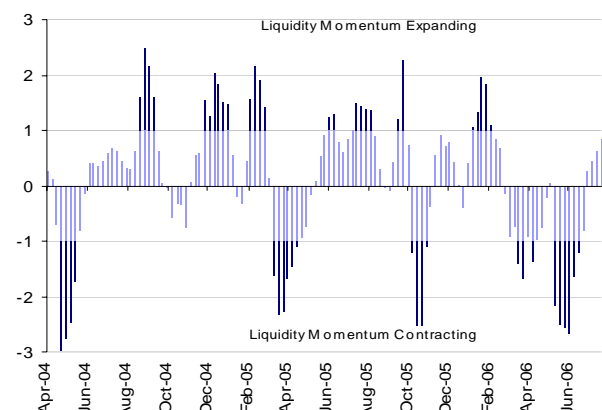
We illustrate the output such that the light blue data points are closely around the mean and show moderate changes in momentum. The dark blue data points are more than one standard deviation away from the mean and indicate periods of strongly expanding or contracting liquidity momentum.

Figure 24: Developed Market Equity Liquidity Pulse



Source: Deutsche Bank Equity Strategy / EPFR

Figure 25: Risky Fund Flows Liquidity Pulse



Source: Deutsche Bank Equity Strategy / EPFR

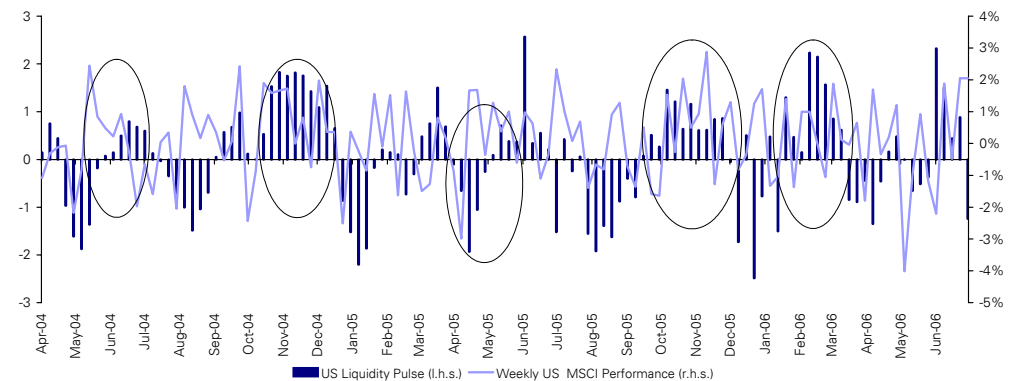
The charts in Figures 24 and 25 illustrate the Developed Equity Market Pulse (based on the fund flows for Western Europe, the US and Japan) and the Risky Fund Flows Liquidity Pulse (based on fund flows for Latin-American equity funds, Asia-Ex Japan equity funds, EMEA equity funds, emerging market bond funds and high yield bond funds). Compared to the Emerging Markets Liquidity Pulse, the Risky Fund Flows Liquidity Pulse captures the

additional effect of the emerging bond and high yield bond markets. Therefore the Risky Fund Flows Liquidity Pulse shows a more complete picture of risky fund flows than the emerging markets equity liquidity pulse, and we believe that it is a more valuable measure of investor's willingness to invest in risky assets, i.e. risk appetite.

Liquidity Pulse and equity market performance

When comparing the liquidity pulse data with equity performance, we observe common trends. Figure 26 shows the US liquidity pulse versus the US MSCI equity index performance from April 2004 to July 2006. The trends of the liquidity pulse and equity performance are similar during periods of consistent liquidity momentum expansion and contraction. This makes the fund flows a reasonable momentum indicator. However, what we also observe is that if liquidity momentum is signaled to be very strong (or very weak) the subsequent performance tends to be negative (or positive). This suggests that the liquidity pulse becomes a contra indicator when momentum has become too strong in either direction. We find comparable results for the other regions.

Figure 26: US Liquidity Pulse vs. weekly US MSCI Index performance



Source: Deutsche Bank Equity Strategy / EPFR, Factset

Trading strategies including the Liquidity Pulse

We now test trading strategies for individual regions based on the direction of the 1-week flow in combination with the direction of the average 4-week flow and the liquidity pulse. The general idea is to stay invested in the market unless all three indicators send a negative signal.

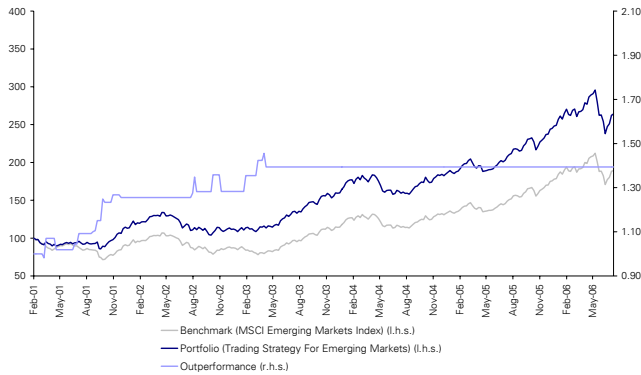
Strategy with strong/weak liquidity pulse as a contra indicator

The first strategy uses the liquidity pulse at the top and the bottom of the range as a contrarian indicator. This assumes for example that if the momentum falls too much, it will hit a lower boundary and rebound into positive territory, along with equity performance. The same principle applies to very high momentum. If the liquidity pulse lies above 1, it is taken as a contrarian indicator and is a negative signal, if it lies between 1 and 0 it is a positive signal, if it lies between 0 and -1 it is a negative signal and if it is below -1 it is again a contrarian indicator and hence a positive signal. The data and performance charts for our strategy for the emerging markets are shown in Figure 27.

The strategy has outperformed the market from February 2001 to July 2006 by 72pp with an information ratio of roughly 70% both based on annualised weekly returns as well as on returns by calendar year. The strategy rose by 154%, compared to 83% for the benchmark, if all excess returns are reinvested. Note that the strategy has in particular outperformed during a bear or sideways market. Between 2001 and 2003 the trading strategy tended to outperform especially when the MSCI Index dropped, as it picked up the signals and went short. It has non-negative excess returns in 97.5% of the weeks, mostly because it stays long

most of the time. The problem however is that it did not give many signals to trade since then and as a result did not pick up the market correction in May 2006. The flow data signals were not clear enough to be picked up by the trading strategy. This trading strategy therefore did not outperform the bull market since March 2003.

Figure 27: Trading strategy vs. benchmark (liquidity pulse boundaries at 1x)

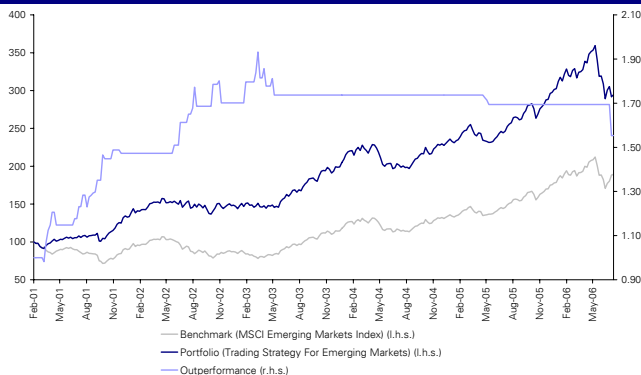


Source: Deutsche Bank Equity Strategy / EPFR, Factset

	Benchmark Index	Strategy	Excess Performance
Average Weekly Returns (annualised)	13.02%	19.10%	6.08%
Median Weekly Returns (annualised)	24.01%	28.81%	0.00%
Stdev of Weekly Returns (annualised)	16.13%	16.02%	8.78%
Information Ratio			69.23%
Weeks with non negative excess return			97.54%
<hr/>			
Return in 2001 (Feb-End)	-9.34%	13.80%	23.15%
Return in 2002	-4.65%	-2.55%	2.10%
Return in 2003	39.27%	51.34%	12.06%
Return in 2004	12.81%	12.81%	0.00%
Return in 2005	31.49%	31.49%	0.00%
Return in 2006 (Jan- 12 Jul)	2.20%	2.20%	0.00%
Total	82.52%	154.44%	71.92%
Average	11.96%	18.18%	6.22%
Median	7.51%	13.31%	1.05%
Stdev	19.76%	20.05%	9.53%
Information Ratio			65.27%

We increased the boundaries of the liquidity pulse to 1.5x standard deviation in order for the contrarian indicators to react at more extreme levels. This way the strategy increased the number of trades done and for the emerging markets increased its performance to 184%. The information ratio though did not improve.

Figure 28: Trading strategy vs. benchmark (liquidity pulse boundaries at 1.5x)



Source: Deutsche Bank Equity Strategy / EPFR, Factset

	Benchmark Index	Strategy	Excess Performance
Average Weekly Returns (annualised)	13.02%	21.08%	8.06%
Median Weekly Returns (annualised)	24.01%	34.01%	0.00%
Stdev of Weekly Returns (annualised)	16.13%	15.97%	11.48%
Information Ratio			70.27%
Weeks with non negative excess return			95.07%
<hr/>			
Return in 2001 (Feb-End)	-9.34%	33.57%	42.91%
Return in 2002	-4.65%	10.09%	14.74%
Return in 2003	39.27%	42.23%	2.95%
Return in 2004	12.81%	12.81%	0.00%
Return in 2005	31.49%	28.22%	-3.27%
Return in 2006 (Jan- 12 Jul)	2.20%	-6.27%	-8.47%
Total	82.52%	183.55%	101.03%
Average	11.96%	20.11%	8.14%
Median	7.51%	20.51%	1.48%
Stdev	19.76%	17.81%	18.72%
Information Ratio			43.50%

We applied the same strategy to all other regions. With the Liquidity Pulse boundaries set to 1x standard deviation for the Liquidity Pulse to become a contra indicator, a positive excess return is generated for the US, Japan and the Emerging Market with the information ratio ranging from 0.3 to 0.7. The main problem with this strategy is that it did not work well since 2003. While it seems to work well in a bear market, it does not in a bull market. We believe the main reason why the strategy does not work well for other regions, is because for most regions we only have data available for the bull market. We cannot back test this strategy for the bear market period, and therefore cannot make any clear conclusions on its ability to outperform the bear market in any regions other than the emerging markets.

Increasing the sensitivity of the strategy to the flow signals decreases its overall performance, as does the introduction of additional signals from flows into bond funds data or from taking the difference of weekly flows. We cannot draw any clear conclusions from the results obtained.

Figure 29: Summary statistics for the above strategy

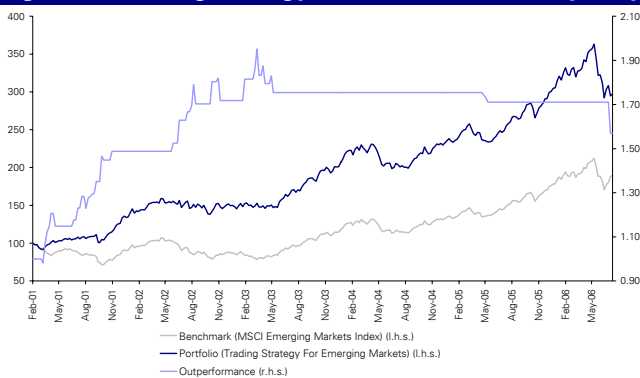
		Boundary of liquidity pulse = 1		Boundary of liquidity pulse = 1.5	
		Annualised Weekly Excess Returns	Calendar Year Excess Returns	Annualised Weekly Excess Returns	Calendar Year Excess Returns
Europe	Information Ratio	-21.4%	-38.1%	-19.7%	-32.5%
	Average Returns	-3.4%	-2.6%	-3.5%	-3.5%
	Median Returns	0.0%	-3.4%	0.0%	-3.4%
	Standard Deviation	16.0%	6.8%	18.0%	10.7%
US	Information Ratio	29.2%	83.6%	-1.5%	-9.8%
	Average Returns	1.7%	1.3%	-0.1%	-0.1%
	Median Returns	0.0%	0.9%	0.0%	-0.3%
	Standard Deviation	5.7%	1.6%	6.0%	0.9%
Japan	Information Ratio	32.6%	31.5%	4.3%	-6.7%
	Average Returns	3.4%	2.9%	0.5%	-0.7%
	Median Returns	0.0%	0.0%	0.0%	-4.3%
	Standard Deviation	10.4%	9.3%	12.0%	10.9%
Emerging Markets	Information Ratio	69.2%	65.3%	70.3%	43.5%
	Average Returns	6.1%	6.2%	8.1%	8.1%
	Median Returns	0.0%	1.0%	0.0%	1.5%
	Standard Deviation	8.8%	9.5%	11.5%	18.7%
Average	Information Ratio	27.4%	35.6%	13.4%	-1.4%
	Average Returns	1.9%	2.0%	1.2%	1.0%
	Median Returns	0.0%	-0.4%	0.0%	-1.6%
	Standard Deviation	10.2%	6.8%	11.8%	10.3%

Source: Deutsche Bank Equity Strategy / EPFR, Factset

Strategy with only weak liquidity pulse as a contra indicator

Our second strategy is similar to the one above but a liquidity pulse above 0 is taken as a positive signal, if it is between 0 and -1.5 it is taken as a negative signal and if it is below -1.5 it is taken as a contrarian indicator, and hence a positive signal. Again we show the results for the emerging markets. This strategy also outperforms the market considerably, but has the same limitations as above.

Figure 30: Trading strategy vs. benchmark with liquidity pulse boundaries at 1.5x



	Benchmark Index	Strategy	Excess Performance
Average Weekly Returns (annualised)	13.02%	21.26%	8.25%
Median Weekly Returns (annualised)	24.01%	34.01%	0.00%
Stdev of Weekly Returns (annualised)	16.13%	15.96%	11.46%
Information Ratio			71.92%
Weeks with non negative excess return			95.42%
<hr/>			
Return in 2001 (Feb-End)	-9.34%	34.91%	44.25%
Return in 2002	-4.65%	10.09%	14.74%
Return in 2003	39.27%	42.23%	2.95%
Return in 2004	12.81%	12.81%	0.00%
Return in 2005	31.49%	28.22%	-3.27%
Return in 2006 (Jan- 12 Jul)	2.20%	-6.27%	-8.47%
Total	82.52%	186.38%	103.86%
Average	11.96%	20.33%	8.37%
Median	7.51%	20.51%	1.48%
Stdev	19.76%	18.02%	19.22%
Information Ratio			43.53%

Source: Deutsche Bank Equity Strategy / EPFR, Factset

Figure 31: Summary statistics for the above strategy

		Boundary of liquidity pulse = 1		Boundary of liquidity pulse = 1.5	
		Annualised Weekly Excess Returns	Calendar Year Excess Returns	Annualised Weekly Excess Returns	Calendar Year Excess Returns
Europe	Information Ratio	-20.9%	-22.2%	-19.7%	-32.5%
	Average Returns	-3.3%	-2.3%	-3.5%	-3.5%
	Median Returns	0.0%	-3.4%	0.0%	-3.4%
	Standard Deviation	15.8%	10.4%	18.0%	10.7%
US	Information Ratio	29.2%	83.6%	-1.5%	-9.8%
	Average Returns	1.7%	1.3%	-0.1%	-0.1%
	Median Returns	0.0%	0.9%	0.0%	-0.3%
	Standard Deviation	5.7%	1.6%	6.0%	0.9%
Japan	Information Ratio	40.9%	34.8%	4.3%	-6.7%
	Average Returns	4.2%	3.9%	0.5%	-0.7%
	Median Returns	0.0%	0.0%	0.0%	-4.3%
	Standard Deviation	10.2%	11.2%	12.0%	10.9%
Emerging Markets	Information Ratio	71.4%	64.5%	71.9%	43.5%
	Average Returns	6.3%	6.4%	8.2%	8.4%
	Median Returns	0.0%	1.0%	0.0%	1.5%
	Standard Deviation	8.8%	9.9%	11.5%	19.2%
Average	Information Ratio	30.2%	40.2%	13.8%	-1.4%
	Average Returns	2.2%	2.3%	1.3%	1.0%
	Median Returns	0.0%	-0.4%	0.0%	-1.6%
	Standard Deviation	10.1%	8.3%	11.8%	10.4%

Source: Deutsche Bank Equity Strategy / EPFR, Factset

Conclusion

We were able to develop trading rules for the overall market based on the direction of the weekly fund flows, the direction of the average 4-week flow and the Liquidity Pulse that work for the regions for which we have the longest history. Generally these strategies remain invested in the market unless all measures send a negative signal. Extremely strong/weak readings of the Liquidity Pulse should be seen as negative/positive signal. There are however a number of problems with the developed strategies. Due to the lack of data we were not able to back test them for the last bear market. Also the strategies did not pick up the market correction in May 2006 and the strategies do not trade much in bull markets.

Predictive power of fund flows for regional allocation

Cross-sectional z-scoring of 4-week average flows as % of NAV

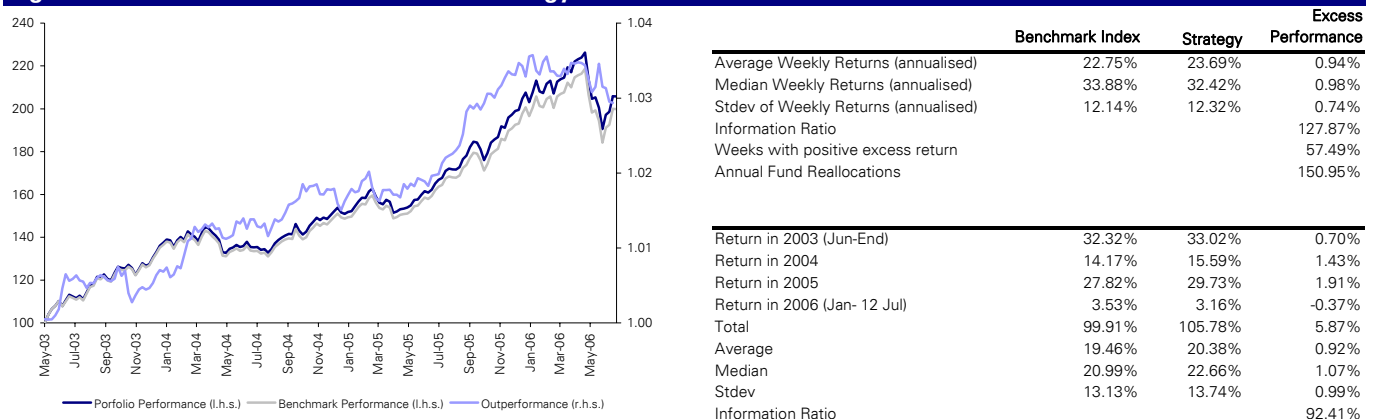
So far we have analysed the information content for predicting the market direction – with mixed results. The question to be answered in this chapter is whether the relative strength of flows for different regions contains any explanatory power for subsequent relative performance of the regions.

We look at the six main regions covered by the fund flow data: Western Europe, the US, Latin-America, Asia ex Japan, Japan, and EMEA. The cross-sectional comparison of the flows is based on the 4-week average flow as % of NAV for the six regions. Each week we normalise these 6 observations by calculating the cross-sectional z-score. z-scores are capped at 2 to reduce the noise in the data. It is ensured though, that the sum of the z-scores equals zero.

The benchmark is an equally weighted portfolio of the six regions with weekly re-adjustment. 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 16.7% to that region. Therefore every week we readjust our positions in all 6 regions around their initial positions of 16.7%, depending on their respective z-score values. We use a multiplier 3, meaning that the absolute size of the maximal active bet equals 6pp.

Our strategy outperformed the market in 2003, 2004, 2005 and marginally underperforms year-to-date. 57.5% of the weekly excess returns have been positive. The average annualised excess at 0.94% compared to the benchmark looks small, but with an even smaller tracking error of 0.74% the information ratio is 1.28. Fund reallocations of 151% of the portfolio size where needed annually, suggesting that even including transaction costs an excess return can be generated. The results suggest that the relative strength of weekly fund flows can add value to models of regional equity allocation.

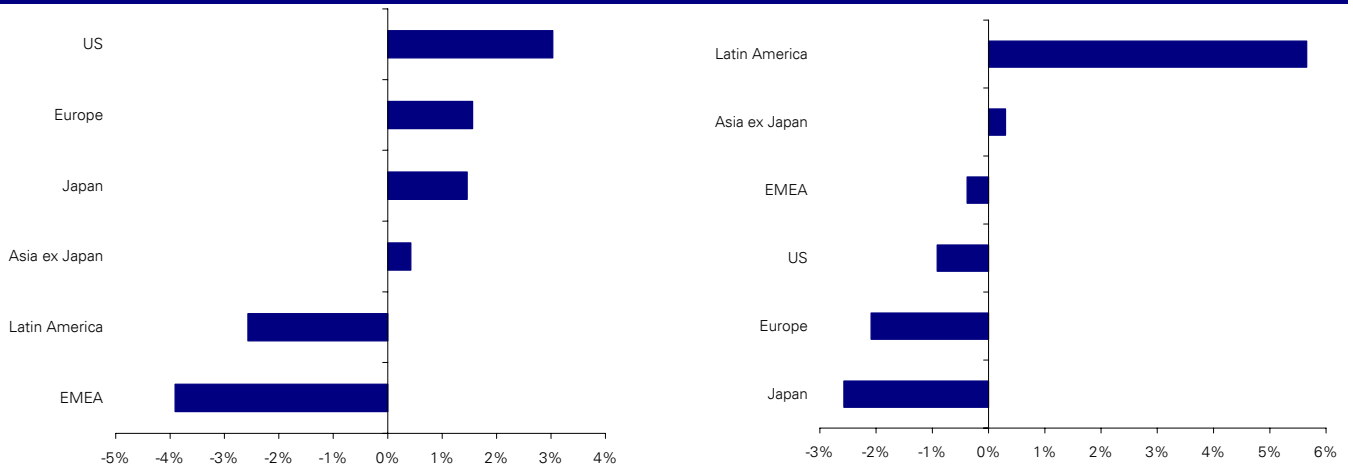
Figure 32: Performance of our Scorecard strategy since June 2003



Source: Deutsche Bank Equity Strategy / EPFR, Factset

Figure 33 depicts the active regional weights based on the above described strategy. While in June 2005 the model suggested overweight positions for emerging markets and an underweight position for developed markets, Japan in particular, it suggested to be short the emerging markets vs long the developed markets, in particular the US, in June this year.

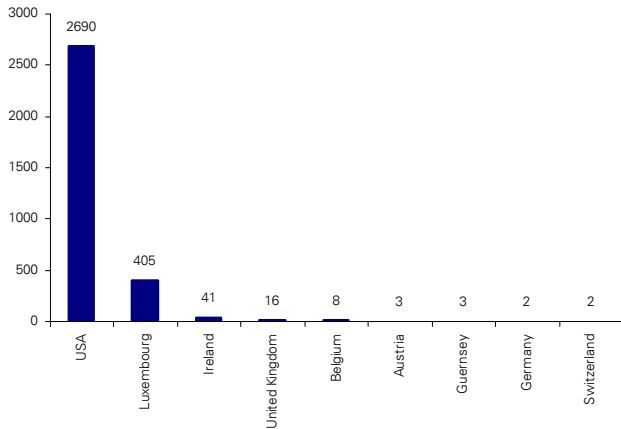
Figure 33: Active average weights in June 2006 (left) and June 2005 (right)



Source: Deutsche Bank Equity Strategy / EPFR

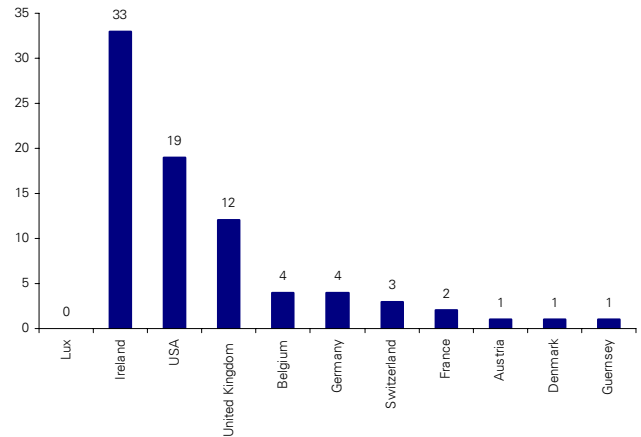
Appendix A: Domicile and geographic focus of funds

Figure 34: No. of funds invested in US equities



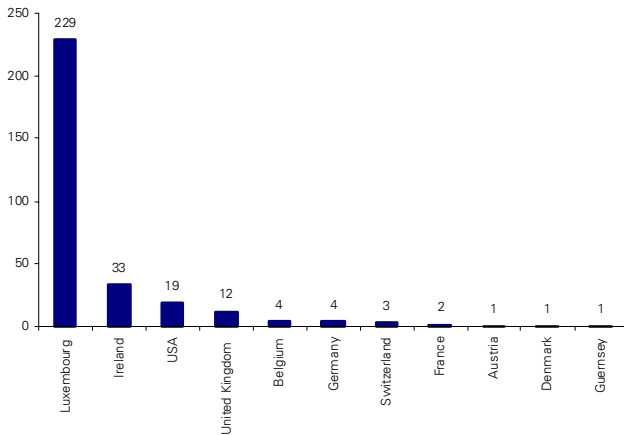
Source: Deutsche Bank Equity Strategy / EPFR

Figure 35: No. of funds invested in Japanese equities



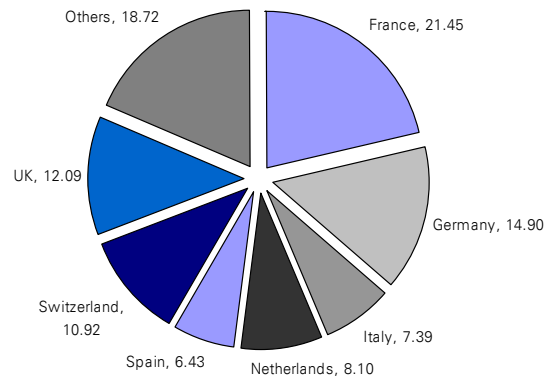
Source: Deutsche Bank Equity Strategy / EPFR

Figure 36: No. of Funds invested in Western Europe equities



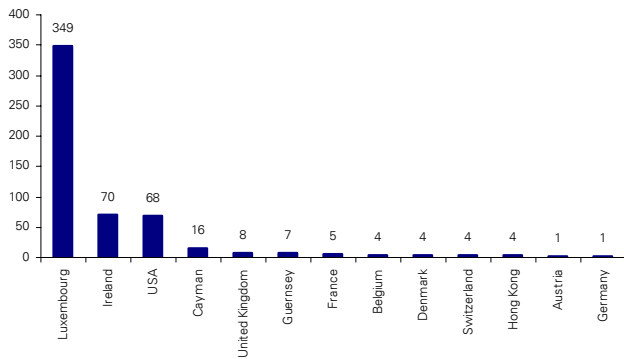
Source: Deutsche Bank Equity Strategy / EPFR

Figure 37: Geographical focus of Western Europe equity funds



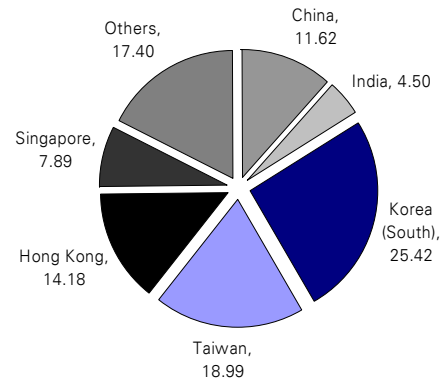
Source: Deutsche Bank Equity Strategy / EPFR

Figure 38: No. of funds invested in Asia-ex-Japan equities



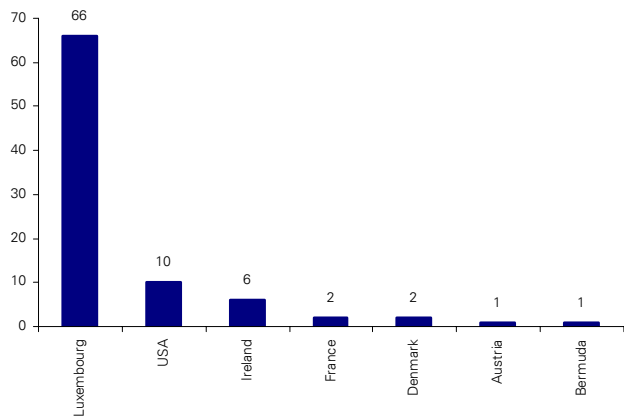
Source: Deutsche Bank Equity Strategy / EPFR

Figure 39: Geographical focus of Asia-ex-Japan equities



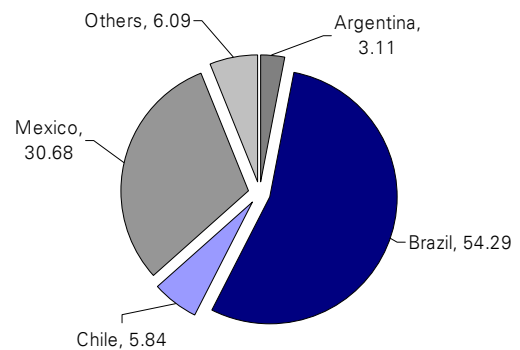
Source: Deutsche Bank Equity Strategy / EPFR

Figure 40: No. of funds invested in Latam equities



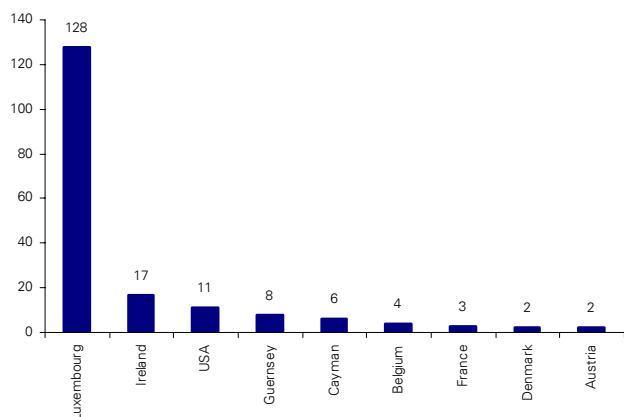
Source: Deutsche Bank Equity Strategy / EPFR

Figure 41: Geographical focus of Latin America equities



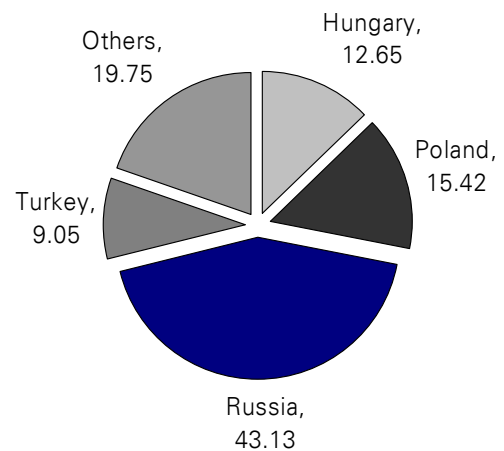
Source: Deutsche Bank Equity Strategy / EPFR

Figure 42: No. of Funds invested in EMEA equities



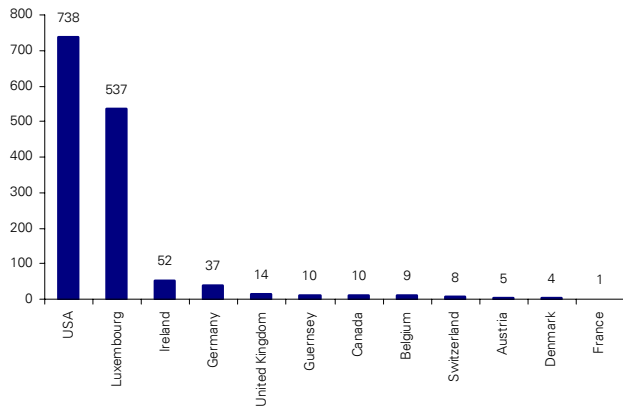
Source: Deutsche Bank Equity Strategy / EPFR

Figure 43: Geographical focus of EMEA equities



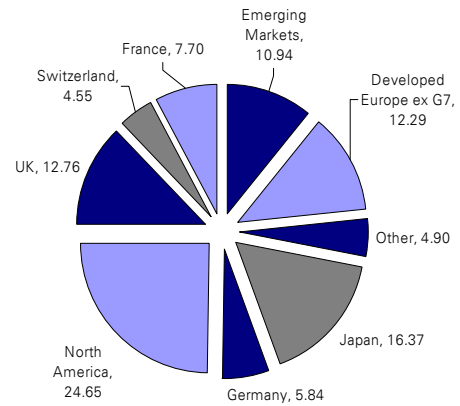
Source: Deutsche Bank Equity Strategy / EPFR

Figure 44: No. of Funds invested in International equities



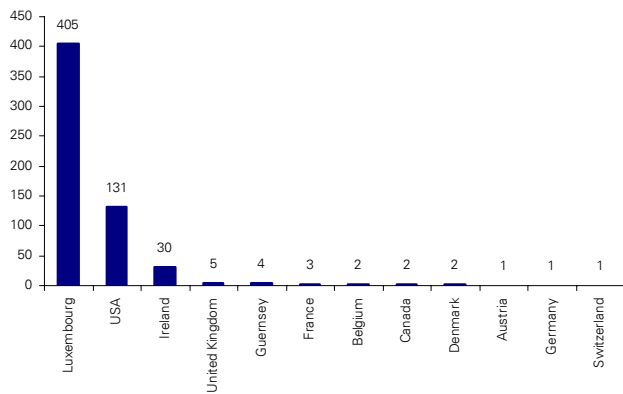
Source: Deutsche Bank Equity Strategy / EPFR

Figure 45: Geographical focus of international equities



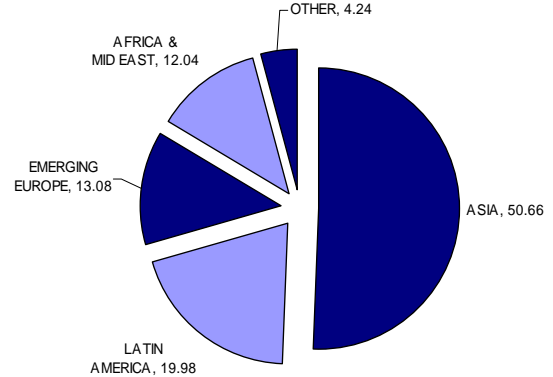
Source: Deutsche Bank Equity Strategy / EPFR

Figure 46: No. of Funds invested in GEM equities



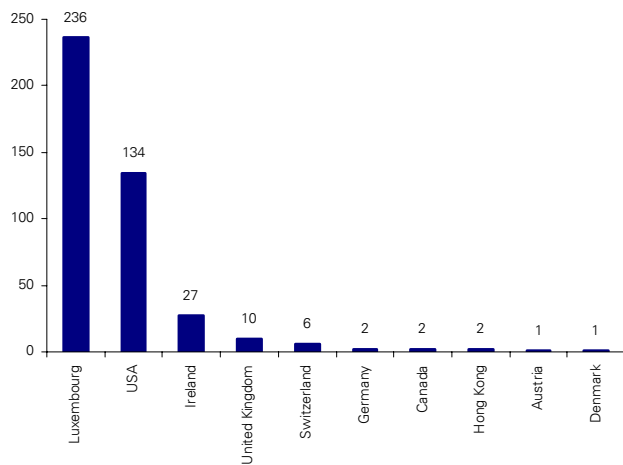
Source: Deutsche Bank Equity Strategy / EPFR

Figure 47: Geographical focus of GEM equities



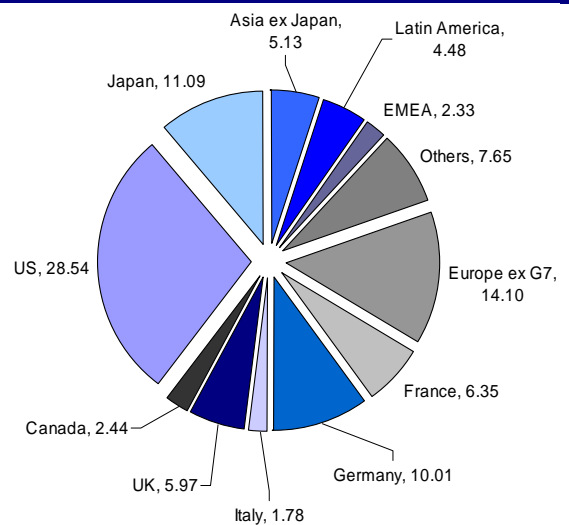
Source: Deutsche Bank Equity Strategy / EPFR

Figure 48: No. of Funds invested in international bonds



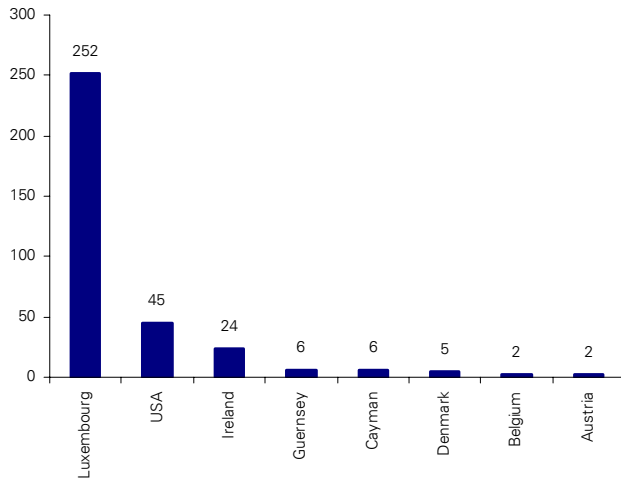
Source: Deutsche Bank Equity Strategy / EPFR

Figure 49: Geographical focus of international bonds



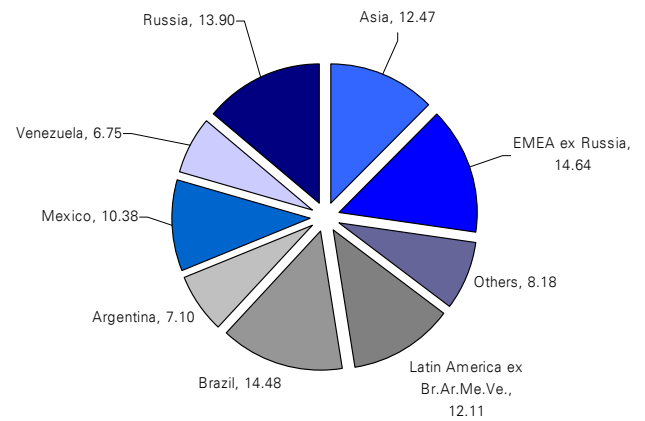
Source: Deutsche Bank Equity Strategy / EPFR

Figure 50: No. of funds invested in emerging market bonds



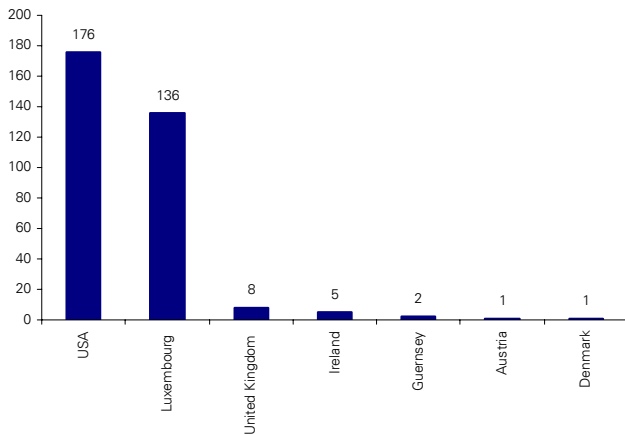
Source: Deutsche Bank Equity Strategy / EPFR

Figure 51: Geographical focus of emerging market bonds



Source: Deutsche Bank Equity Strategy / EPFR

Figure 52: Funds invested in High Yield bonds



Source: Deutsche Bank Equity Strategy / EPFR

The author of this report wishes to acknowledge the contribution made by Irevna Research Services Ltd, a third-party provider to Deutsche Bank of offshore research support services.

Appendix 1

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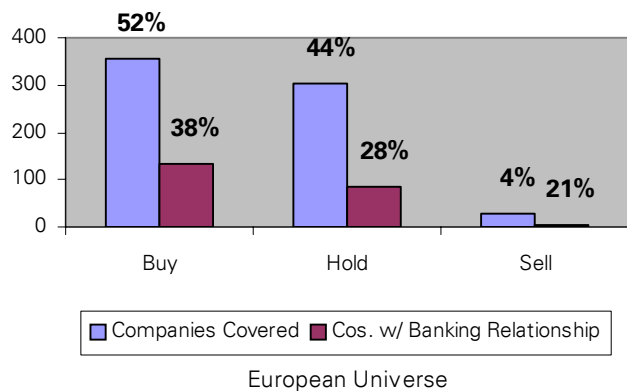
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