

iFlow

VISION



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Monitor and Weekly Revamp A Primer for our Periodic Reports

This note provides brief descriptions of the charts and tables about to be introduced in our daily iFlow Monitor and iFlow Weekly. These reports are designed to illustrate investor behavior in currencies, equities and fixed-income products across our \$43trn in assets under custody and servicing.

Incorporating [iFlow Equities](#) and [iFlow Mood](#)

Earlier this year we undertook and completed a full rebuild of our equity flow database. iFlow Equities 2.0 breaks down daily flows into global equity markets by eight regions, 50 countries, 11 sectors, 24 industry groups and 69 industries.

iFlow Mood aggregates global equity flows across all regions and sectors. It estimates investors' marginal propensity to buy equities over their marginal propensity to buy short-dated 'safe-haven' bonds in Canada, the US, UK, Germany, France, Switzerland and Japan. A few additional features:

- **iFlow Monitor.** Measures investor sentiment and exposure in two trading strategies in FX. iFlow Carry quantifies exposure to high-carry currencies. iFlow Trend estimates the same in trending currencies. The monitor will report weekly, monthly and quarterly scored flows in equities, bonds and FX by country. We aggregate equity flow by sector and across eight geographies.
- **iFlow Weekly.** Reports exposures across the three asset classes by flow and performance to demonstrate successful and painful trades. We will detail fixed income by maturity in the US. iFlow Cloud breaks down FX flows according to holdings, flow and profitability. iFlow Equities will differentiate across sectors within each region. The fixed-income page will chart cross-border flow in the US, and demand for government/corporate bonds in each for 34 countries.

iFlow Mood, Carry and Trend (Daily)

Scored flows and Surge flows

Scored flow is net buying of assets scaled by the trailing 1-year asset flow standard deviation.

Surge flow is defined as the difference between the average 65-day scored flow and average 130-day scored flow.

iFlow Mood, Carry and Trend (08/25/2022)

iFlow Mood measures the surge flow difference.

iFlow Carry is Spearman's rank correlation between FX flows or holdings against its equivalent bond yield.

iFlow Trend is Spearman's rank correlation between FX flows or holdings against its momentum, defined by the ratio of 50-day moving average over 200-day moving average.

P-value of 0.2 is set as a threshold of significance.

SOURCE: BNY Mellon, MSCI, WM/Refinitiv. Data as of Aug 25, 2022



Carry/Trend Significance
 — not significant ($p > 0.2$)
 — significant & positive
 — significant & negative

iFlow Mood is an indicator of investor risk sentiment. iFlow Mood measures the relative marginal demand between equity market flows in the iFlow universe and flows for short-dated core sovereign (Canada, France, Germany, Japan, Switzerland, US and UK) fixed-income markets. The marginal flow is defined by "surge flow." A higher iFlow Mood level or greater "surge flow" in global equity markets relative to core safe-haven sovereign bonds tends to correspond to higher risk appetite. On the other hand, at times of risk aversion, the "surge flow" into liquid front-end paper tends to be greater, leading to a negative reading.

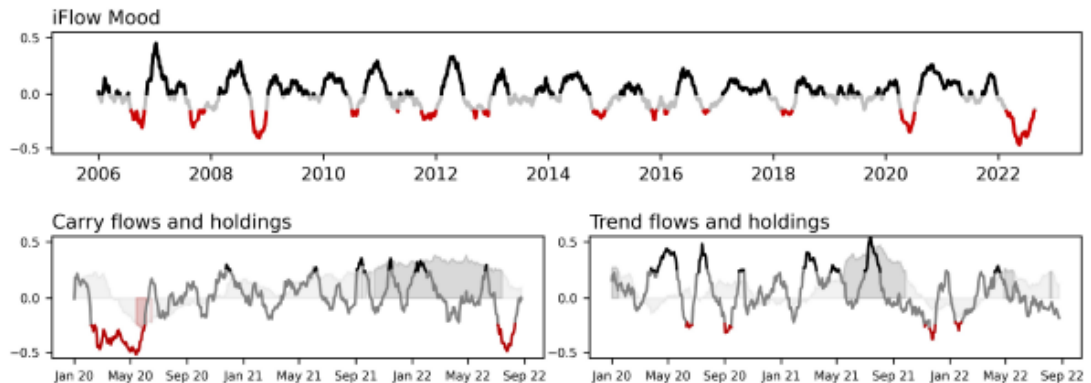
We classify iFlow Mood across three settings: above 0 is the exuberance zone; between 0 and -0.15 is the neutral zone; and below -0.15 is the fear zone. In an equilibrium position, iFlow Mood tends to be in the exuberance zone as investors are naturally risk-seeking during periods of normal growth and financial conditions.

iFlow Carry is a Spearman's rank correlation coefficient (ρ -value). It measures the relationship between 33 currencies' flows or holdings against the US dollar within iFlow universe against their equivalent 5-year local bond yields. FX and bonds data is smoothed by taking 20-day rolling averages. Currency flow is standardized based on a 260-day daily sample of a 5-day exponential moving average series.

A statistically significant positive iFlow Carry suggests a higher correlation between investors' flow or holdings and yield. Large capital flows into higher-yielding currencies and away from funders, i.e., carry trades, signals risk-on. A high iFlow Carry index environment tends to correspond to a weaker US dollar environment.

iFlow Trend is a Spearman's rank correlation coefficient (ρ -value). It measures the relationship between 33 currencies' flows or holdings against the US dollar within iFlow universe against its momentum, defined by ratio of the 50-day moving average of the spot rate versus its 200-day moving average. FX flows are smoothed by taking the 20-day trailing average of daily scored flow. This daily scored flow is the number of standard deviations of trailing daily FX flow.

A statistically significant positive iFlow Trend index suggests a higher correlation between investor flow and currency price trends. In other words, greater flows are observed into currencies showing persistent directional biases, stronger or weaker.



FI and FX Flows (Daily)

Our iFlow Monitor summarizes the state of global markets by showing investor net buying across three asset classes. It distills BNY Mellon's proprietary dataset spanning nearly 20% of tradeable global assets into a barometer of risk appetite.

Asset Flow and Scored Flow

Asset Flow is calculated as net aggregate trading, sum of buy trades minus sum of sell trades, minus net maturing aggregate trades for each currency (against all crosses).

Scored Flow is defined as exponential moving average asset flow normalized by 1-year trailing asset flow standard deviation.

SOURCE: BNY Mellon, MSCI, WM/Refinitiv

iFlow covers up to 37 currencies, equities and fixed-income flows from over 30 countries, with a time series dating back to early 2000. Underlying financial data is recorded daily, as of the previous business day's trading hours. The equity universe includes common stock, ADRs, GDRs and others. Fixed-income coverage includes government and corporate bonds, bills and commercial paper. Additional granular details are available in our iFlow website, including asset scaling (USD or local currency term) or government flows into different maturity segments.

Scored flows are calculated the same way across asset classes. Firstly, the asset flow is calculated as net aggregate trading, i.e., the sum of buy trades minus sum of sell trades, minus net maturing aggregate trades for each currency (against all crosses). Scored Flow is defined as the exponential 1-week moving average of asset flow over a given window, scored by 1-year trailing asset flow standard deviation. In other words, for the tables shown below, each print is the number of daily standard deviations, averaged over 1 week, 1 month and 1 quarter.

Within the iFlow FI and FX Monitors, assets are grouped into four categories: G10, Latin America, EMEA and Asia Pacific. FI Flows is the Scored Flow for respective sovereign bonds. FX Flows is Scored Flow for combined forward and swap flow for each currency. The three bars in each column show average scored flow for 1 week (5 days, blue), 1 month (20 days, cyan) and 3 months (65 days, grey).

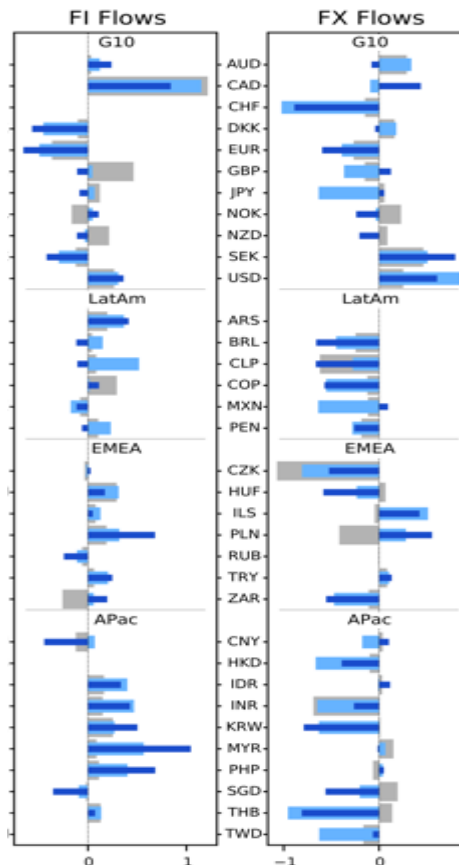
Fixed Income and FX Flows (09/01/2022)

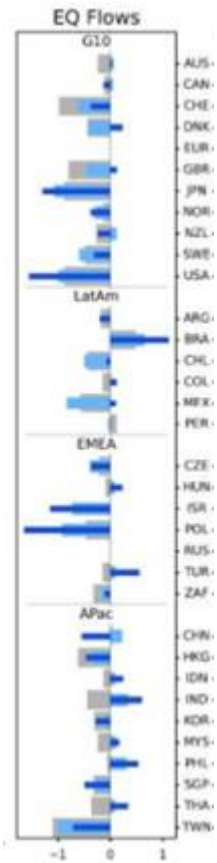
The charts show scored flow of sovereign bonds and currencies, grouped into four categories: G10, Latin America, EMEA and Asia Pacific.

The histogram shows three average scored flows: 1 week, 1 month and 3 month

SOURCE: BNY Mellon, MSCI, WM/Refinitiv. Data as of Sep 1st, 2022

Avg flows
 1 week 1 month 3 month





Equities: Regional and Sector Flows (Daily)

Our one-page monitor (not shown), displays equity flows by region and sector, plus three charts showing flows by asset class in all main economies followed in iFlow.

iFlow Equities 2.0 allows us to dig into equity flows with an impressive degree of granularity. In the monitor, we report global sector flows according to the Global Industry Classification Standard (GICS) taxonomy. Of the charts reproduced below, the top one breaks down sector flows globally, with 1-week, 1-month and 3-month periods indicated by the width and color of the bars. The chart below it shows flows over the same periods for eight regions, including global developed and emerging markets, as well as regional cuts for DM and EM.

These two charts offer insights into broad global equity flows at the sector and regional levels. NOTE: iFlow Equities 2.0 data also provides sector, industry and industry group (i.e., GICS Levels 1, 2 and 3) flows by each DM and EM region.

The long narrow chart at left shows equity flows by country, covering 34 markets in DM, EM LatAm, EM EMEA and EM APAC. Consistent with the equity charts, these bars correspond by width and color to the three different windows we consider. The monitor will have similar pictures for FX and fixed-income (shown on page 3).

iFlow Equities 2.0 reports our flows in four normalization forms: (1) US dollars; (2) as a fraction of volume; (3) as a fraction of market capitalization; and (4) as a fraction of the flow standard deviation (scored flow). Scored flow is the unit of measure used in most of our reports and on the iFlow website.

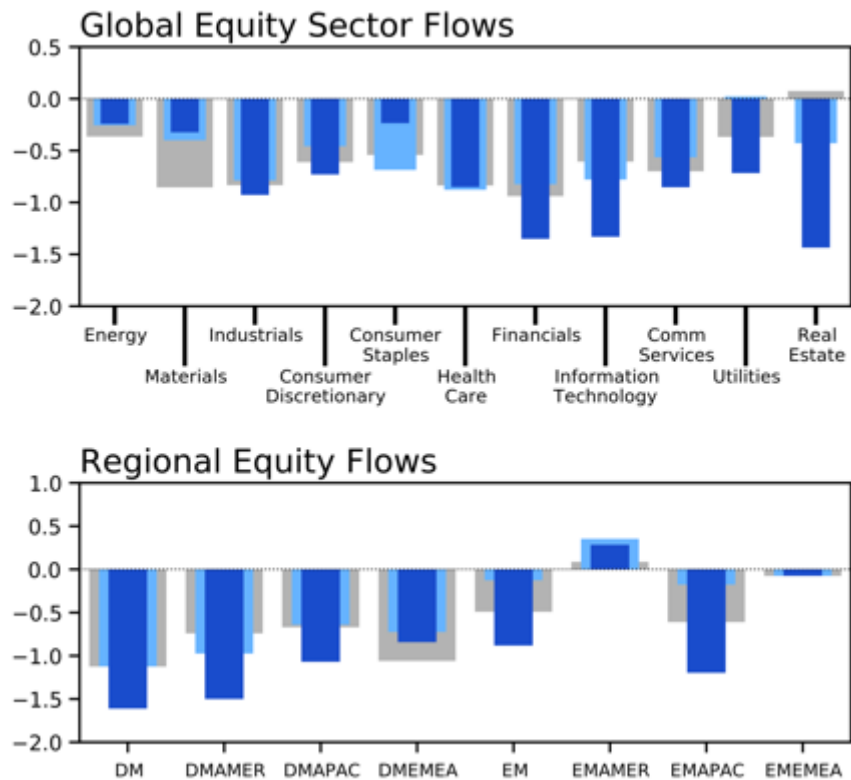
Global Sector and Regional Flows (09/01/2022)

The chart on top reports flows globally by GICS Sectors; the one on the bottom reports aggregate scored flows by major region.

DMAMER: Canada, US
DMAPAC: Australia, Hong Kong, Japan, New Zealand, Singapore
DMEMEA: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Israel, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, UK

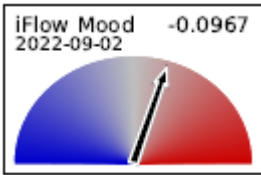
EMAMER: Argentina, Brazil, Chile, Colombia, Mexico, Peru
EMAPAC: China, India, Indonesia, Korea, Malaysia, Pakistan, Philippines, Taiwan, Thailand
EMEMEA: Czech Rep, Egypt, Greece, Hungary, Kuwait, Poland, Qatar, Russia, Saudi Arabia, South Africa, Turkey, UAE

SOURCE: BNY Mellon, iFlow



Avg flows

1 week 1 month 3 month



iFlow Markets Snapshot (Weekly)

Our iFlow Markets Snapshot illustrates investor sentiment via a mood gauge (see at left). Negative readings imply marginal equity selling against short-duration bond buying. iFlow Mood is the spread between marginal global equity flows and flows in core fixed-income instruments in Canada, France, Germany, Japan, Switzerland, the US and the UK with 1-year maturities.

(09/02/2022)

SOURCE: BNY Mellon

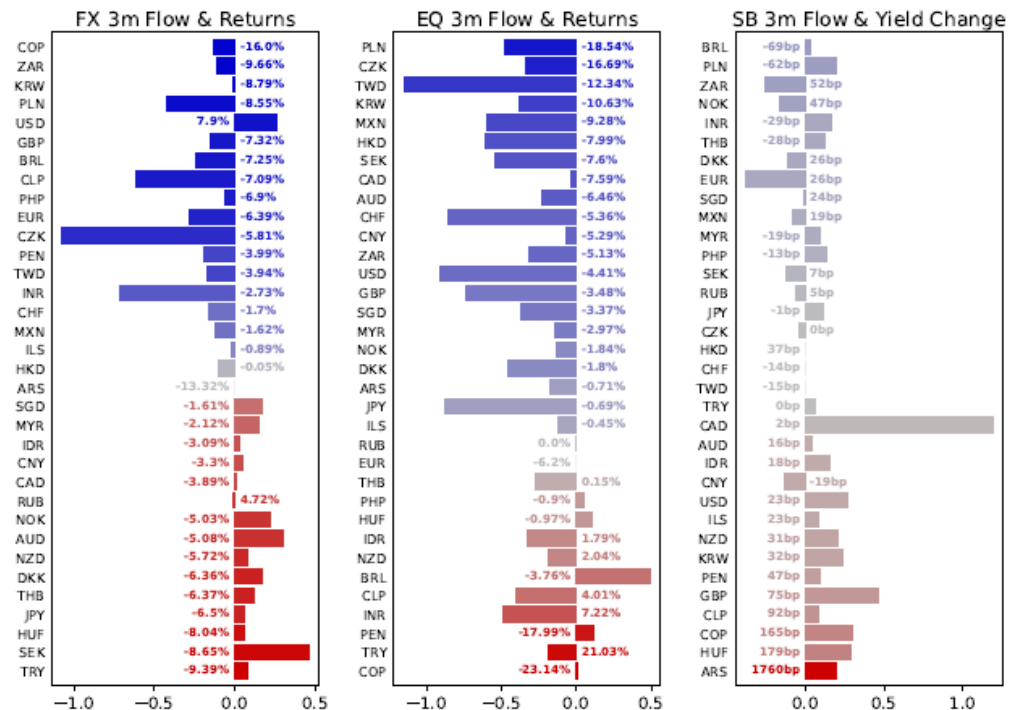
The tables with histograms below chart 3-month flow into currencies (FX), equities (EQ), and sovereign bonds (SB). The numbers represent 3-month returns in FX and equities, or the yield change in basis points for sovereign bonds. The upper readings correspond to successful trades, i.e., flows in the same direction as returns. Lower readings indicate contra-market flows and painful trades.

The chart estimates scored flows into three maturity buckets in US Treasuries. Investors were bearish duration until summer 2021 but have turned bullish since.

3-month Flow and Return (09/02/2022)

Winners: buying appreciating assets or selling depreciating assets. **Losers:** buying depreciating assets or selling appreciating assets

SOURCE: BNY Mellon



US Govt Bond Flow by Maturity (09/02/2022)

Charts shows strong demand for short maturity bonds followed by the longest duration.

SOURCE: BNY Mellon



iFlow Cloud with FX Aggregates (Weekly)

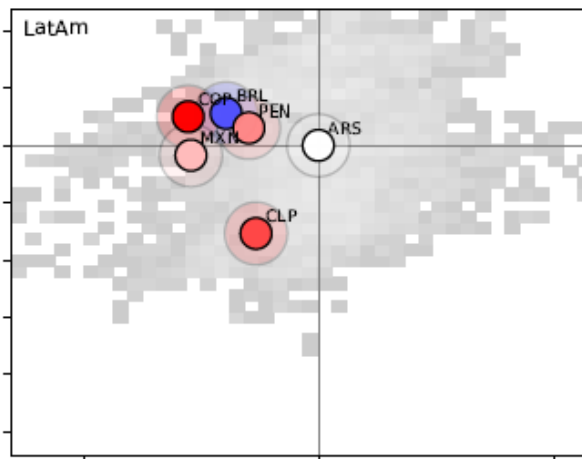
We preserve iFlow Cloud as a framework designed to display investor behavior using four distinct states: underheld/overheld versus inflows/outflows, with an additional set of indicators to assign profits and losses to each holding. Flows and holdings along the x- and y-axes denote buy/sell exposure, while holdings aggregate the total of all existing currency exposures. Profitability records and aggregates cumulative profit and loss of each FX transaction through the life of the exposures for each currency. The behavioral aspect of these exposures matter, and through back-testing we have established that positions are vulnerable while recording losses. The corresponding flow direction can indicate whether investors are seeking to add to such exposure (actively or passively) or are under pressure to exit.

Periods during which currencies in a region congregate and exhibit similar profitability pressures reflect investor sentiment. For example, at present Latin American currencies remain well-held because of high nominal rates and commodity interest in an inflationary environment. However, a resolutely hawkish Federal Reserve and fears over commodity demand have led to losses on these positions (excluding BRL longs), and investors are selling the region's currencies en masse.

iFlow Cloud, by region

Calculated based on 20-day flows, holdings and profitability. Clouds represent regional distributions over trailing 1,000 days.

SOURCE: BNY Mellon, MSCI, WM/Refinitiv, data as of Sep 2nd, 2022

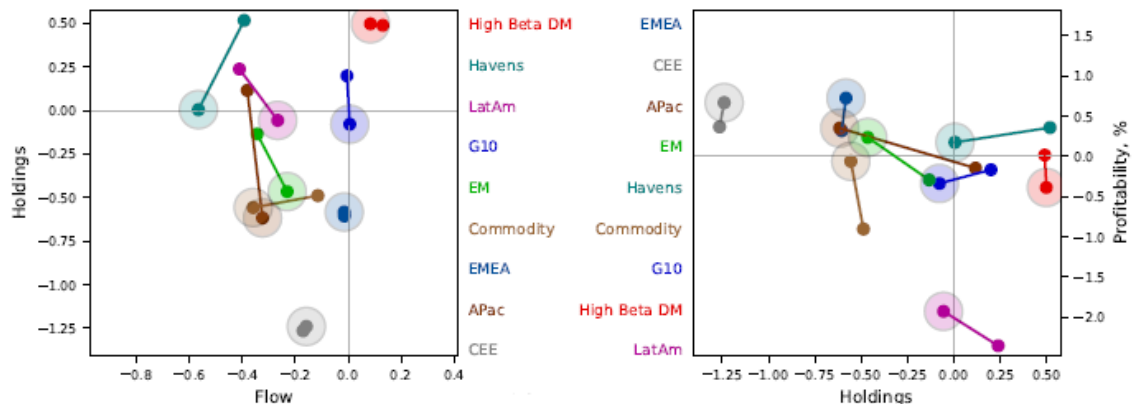


Using the same principles, we can also evaluate how investor sentiment for a given region has evolved over a set period. Using the eight aggregates defined in **iFlow PnL**, we place the defined aggregates according to their holdings vs. flow exposures and holdings vs. profitability exposures. For example, between July and August, "haven currencies" (JPY, CHF and SGD) moved from in-demand to heavily sold as US rates recovered and these currencies reverted to their funding status. Meanwhile, the profitability of CEE currencies has fallen materially as further rate cuts are priced in and markets worry about the region's economic exposure to the Eurozone.

iFlow Cloud, by aggregate

Current holdings/20-day flow/profitability of currency aggregates as defined in iFlow PnL. Barbells are current & 20-day lagged measurements.

SOURCE: BNY Mellon, MSCI, WM/Refinitiv, data as of Sep 2, 2022



Global and Regional Sector Flow (Weekly)

Page 3 of the new Weekly will present aggregated sector flows globally, as well as regionally, for six regions. Flows into or out of the 11 main GICS Level 1 sectors are depicted in the top panel for the world. The different widths and colors of the bars represent different look-back windows: grey is average scored flows for a 3-month (i.e., 1-quarter) sample period; light blue shows averaged scored flow for a 1-month lookback period: and the darker blue represents a 1-week period.

The bottom six panels supply the same information for the six different regions. The three charts on the left are for developed markets, segmented in the Americas, DM EMEA and DM APAC. Regional membership is detailed in the sidenote on page 4 of this paper. The flows for each region and sector are scored by their own 1-year trailing standard deviation, making them comparable.

Sector weights by fractional volume are not equivalent across regions. The weighting does not add to 100% across each region because these are calculated as average volumes over the past year for the region. In Developed Americas, the heaviest sector is Information Technology, which makes up more than 22% of the weighting. In Developed EMEA, Healthcare and Industrials make up around 12% and 15%, respectively. IT in this region has a low weight, at 11%. Developed APAC has a large share of Real Estate, at 6.3%, due to Hong Kong's membership.

Emerging APAC is greatly weighted to IT, at 31%. Emerging EMEA is heavy on Energy at 30% and Financials at 28%. Emerging Americas (LatAm) has the largest weights in Materials, at 23%, and Consumer Staples, at 18%.

Regional Weights

Weights estimated out of fractional average volumes for the past year. Totals do not add to 100%.

	Developed											Emerging										
	Energy	Materials	Industrials	Discretionary	Consumer Staples	Healthcare	Financials	IT	Consumer Services	Utilities	Real Estate	Energy	Materials	Industrials	Discretionary	Consumer Staples	Healthcare	Financials	IT	Consumer Services	Utilities	Real Estate
Americas	5.6	3.5	8.8	11	4.8	9.8	12	22	7.2	2.8	2.9	12	23	8.8	1.8	18	2.1	18	0.7	3.1	6.6	0.7
EMEA	5.4	7.6	15	9.2	8.3	12	12	11	3.5	3.6	1.5	30	20	2	4.9	2.9	0.5	28	0.1	3.1	0.9	1.1
APac	1.6	9.4	16	11	6	5.1	15	11	6.5	1.4	6.3	4.3	8.9	9.3	7.9	5.5	4	19	31	3.8	1.4	0.8

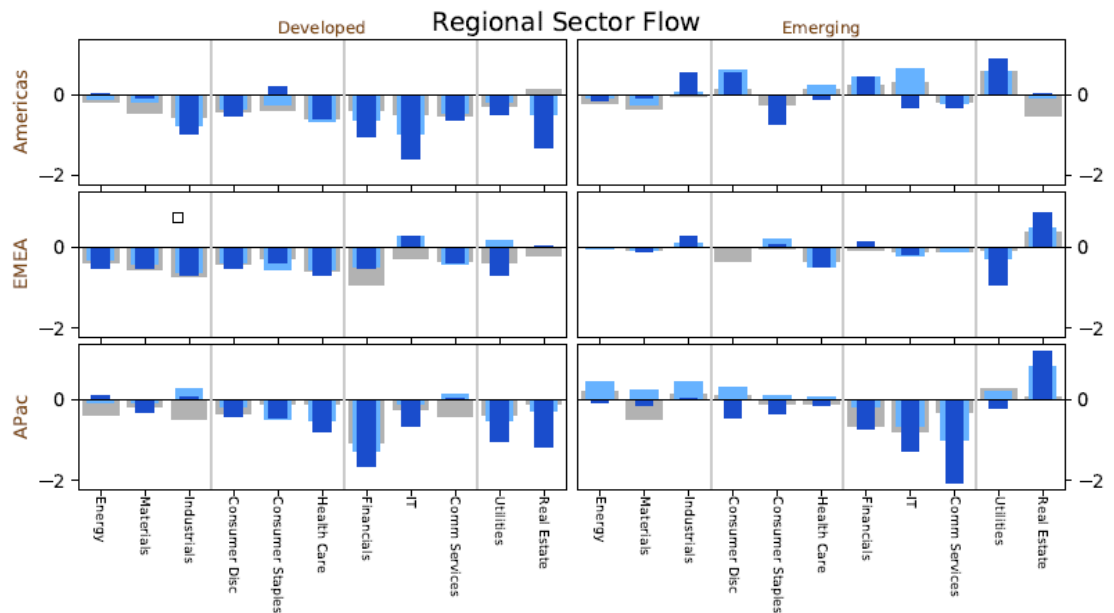
SOURCE: BNY Mellon, iFlow

Regional Sector Flows (09/02/2022)

For the three regions in DM and EM, we report sectoral flows on a 3-month, 1-month and 1-week look back. Country aggregation in page 4.

SOURCE: BNY Mellon, iFlow

Avg flows
█ 1 week █ 1 month █ 3 month



Fixed Income Monitor (Weekly)

The Fixed Income Monitor is a dedicated page that provides a snapshot of current bond flow dynamics for all markets for which data density is strong. On an aggregate (domestic and cross-border investors) basis, the horizontal bars display the average flows into a market's sovereign and corporate bond markets over 1-week, 1-month and 3-month bases. Over these time horizons flows are normally intrinsically volatile, but a similar directional flow over a sustained period can point to structural allocation adjustments. Changes in the strength of the flows also signals whether an allocation or investment trend is strengthening or reversing. For example, the Chilean corporate bond market was the strongest performer in iFlow during August 2022, and inflows have been progressively strengthening over the prior three months.

The US fixed-income market arguably remains the most liquid and important price-signaling market globally. Domestic and cross-border asset allocation changes are presently taking place in direct response to changes in Fed policy expectations. Tracking these flows across multiple issuers, maturities and investor categories is essential in assessing the transmission effects of monetary policy and US data.

Due to the prevalence of cross-border investment into US asset markets, we have two cross-border flow sets, one comparing asset allocation trends in US fixed income vs. equities, the other comparing differences in behavior between aggregate flows and cross-border flows only. Comparing flows into individual maturities provides insights into fixed-income investors' convexity views and liquidity preference. Finally, we also assess Treasury flow vs. corporate bond flow as an indicator of changes in credit risk.

Fixed Income Sovereign and Corporate Flows

The bars for government and corporate bonds shows three average scored flows: 1 week, 1 month and 3 month

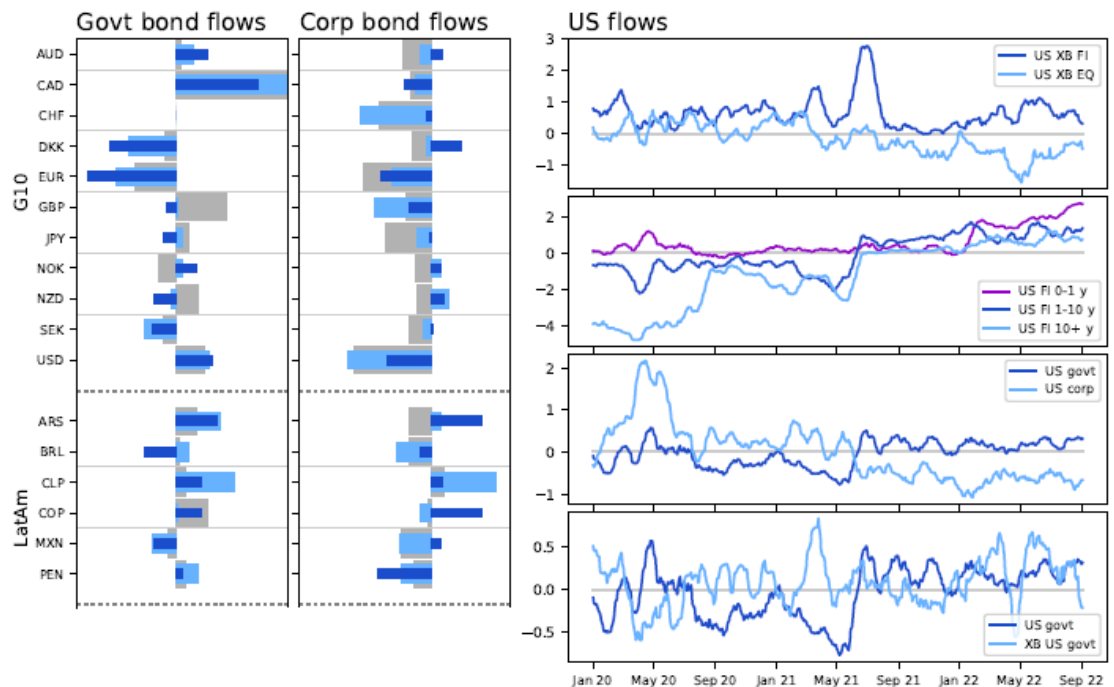
Flows are categorized into four geographical regions and 34 markets: G10, Latin America, Europe, Middle East, Africa and Asia Pacific.

US fixed income flows

The charts denote 20-day smoothed (1) cross-border fixed income and equity flows, (2) fixed income flows by maturity bucket, (3) aggregate government vs. corporate bond flows, (4) aggregate government vs. cross-border government bond flows.

SOURCE: BNY Mellon, MSCI, WM/Refinitiv, data as of Sep 2, 2022

Avg flows
1 week 1 month 3 month



Finally, we also include the iFlow Value strategy and holdings update, in addition to the iFlow Carry and Trend strategies and holdings figures, which are also published daily (see page 2). The Value factor index is calculated using the ratio of 1-month vs. 3-year average Bank for International Settlements (BIS) broad Real Effective Exchange Rate. iFlow Value calculates the Spearman's rank correlation between the 20-day flow or holdings of currencies against the index. Significance implies market preference for currencies that are heavily over- or undervalued against their long-term trends.

iFlow Chart and Next Steps

Our new weekly publication replaces a chartbook (will still be released weekly and available via a [link](#)). For each country, we produce a picture of the historical data over the past year in FX, equities, corporate debt and sovereign bonds.

The picture below represents the iFlow Chart page for the Eurozone. At the top left, we illustrate daily scored flows into all EUR crosses. Scoring represents the number of standard deviations of the net flows. The left chart at the bottom displays EUR holdings. Adding the top- and bottom-left charts shows that through August 2022, investors were adding to net short EUR holdings.

The three charts to the right depict: scored flows into equities at the top; scored flows into corporate bonds in the middle; and scored flows into Eurozone sovereign bonds at the bottom. All three were revealing net selling through August 2022.

Our next enhancement will be a revamping of our monthly publication to incorporate new sets of indicators built with iFlow Equities, as well as month-end rebalancing statistics and other slow-moving flow yardsticks.

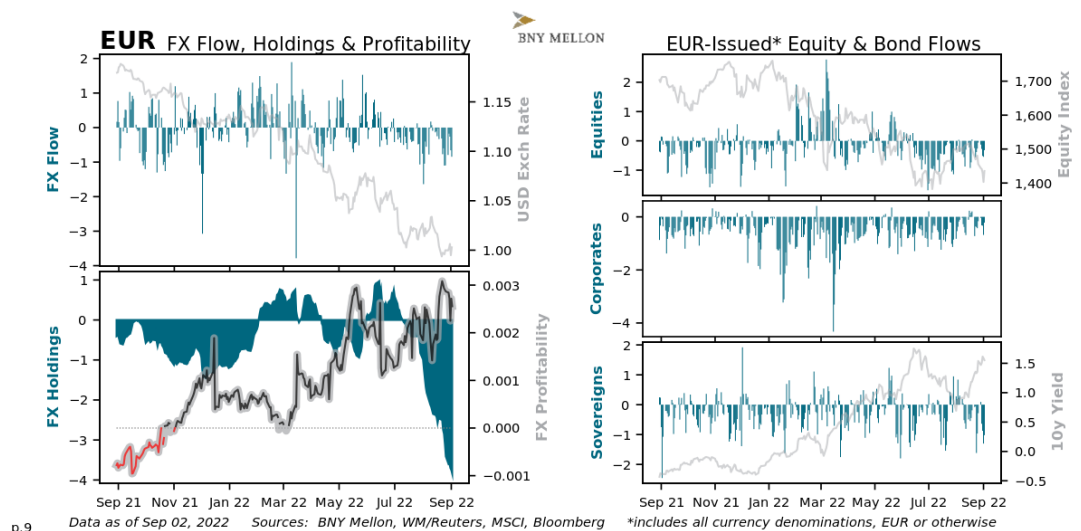
A preview of US-based cyclical indicators, as well as growth versus value flows and investor demand for leveraged companies, is introduced [here](#). We are also developing similar measures for international equity flows, which will be published in the new monthly and discussed in another white paper in the coming weeks.

These indicators, as well as detailed ESG flow metrics, will be updated monthly. For ESG, we are tracking investor buying of E, S and G by region and globally. The explanation of these new indices can be found [here](#). We are tracking flows into these investment options, as well as stipulated under the UN classification of Global Compact: anti-corruption, human rights, labor rights and environment.

iFlow Chart: Eurozone

Illustration of the Eurozone page for September 2nd, 2022

SOURCE: BNY Mellon



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