Introducing iFlow Chart

PROFILING INDIVIDUAL FLOWS

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Giving Context to a Currency's Current Flow and Holdings

In this note, we introduce iFlow Chart – a chart pack dedicated to individual flow profiles for all currencies covered by our iFlow Monitor. Each currency will have its own dedicated section, displaying the recent history of its flow, holdings and other flow dimensions detailed in other publications.

We intend to publish iFlow Chart on a weekly basis, available here.

Historical Data Added to Existing Flow Metrics

Enabling time series analysis for iFlow indicators

iFlow vividly captures daily flows cross 30+ currencies, equity markets and bond markets. In comparing scored flows, we can assess the marginal changes in individual flows and identify potential for follow-through or reversals. iFlow Cloud does the same for longer-term positioning through a comparison of scored holdings. However, investors will also have strong interest in how an individual currency's current flow or holdings compares to its recent history.

iFlow Chart provides an opportunity for investors to utilize pre-prepared time series to give the historical context needed for individual analysis, rather than comparative analysis. We acknowledge that currencies can exhibit idiosyncratic positioning behavior, with a market signaling (e.g., seasonality) effect independent of wider market styles or cross-asset behavior.

In time, we hope to provide the capability for clients to construct their own time series for analytical purposes. Until then, we intend to provide iFlow Chart on a weekly basis. iFlow Chart comprises two main components:

- **Historical scored currency flows and holdings:** The indicators are the same scored indicators detailed in the iFlow Monitor and iFlow Cloud. We also overlay outright dollar performance and holdings profitability to assess changes in flow and holdings behavior relative to other market indicators.
- **Historical scored equities and fixed income flow:** To provide a cross-asset profile, we also provide historical scored flow for individual economies' equities and fixed income markets, overlaid with performance of a benchmark index. In a new addition, we also separate corporate and sovereign flow to take into account differing structures of individual bond markets.

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Main Charts – FX Dimensions

One-year time series for positioning and profitability indicators

For each currency profile, we introduce five unique time series covering flow and stock dimensions for a country or economy's currency, issued equities and bonds. Where applicable, we also overlay a corresponding price indicator to assess behavioral links between price action and underlying transactions.

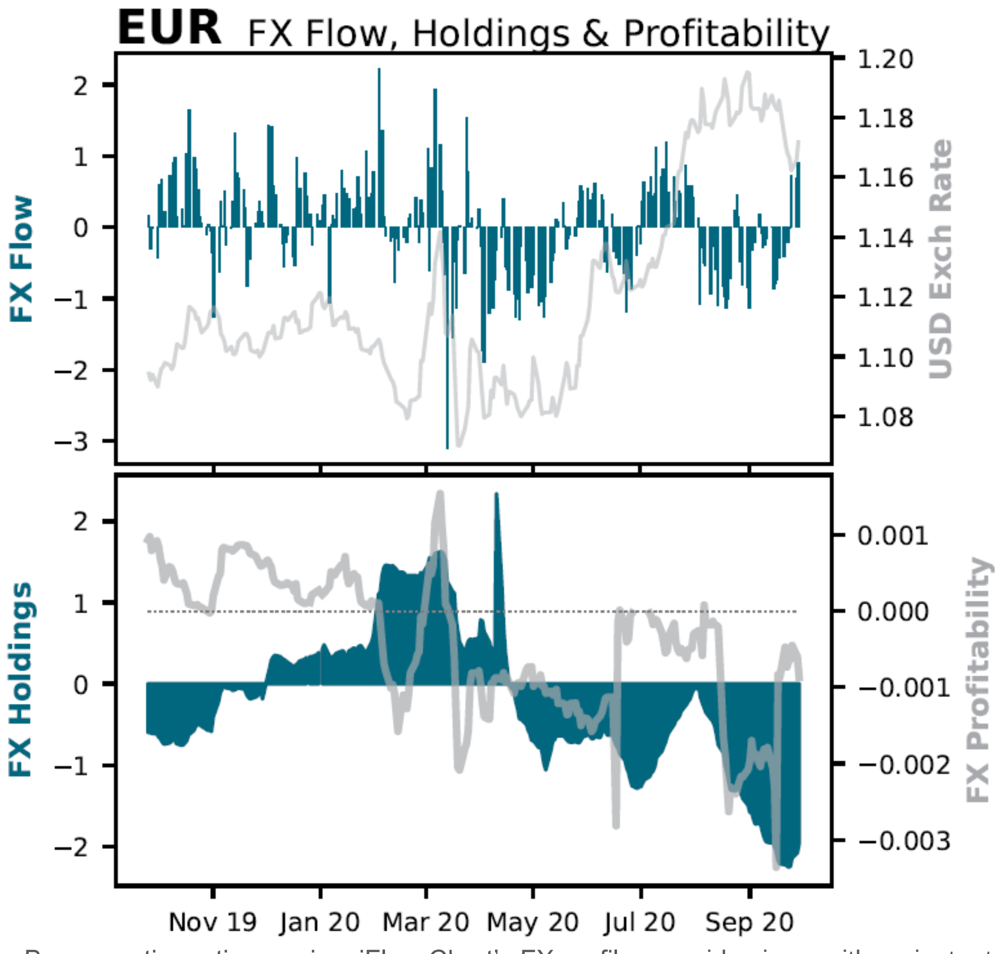
The main charts for each currency profile pertain to their FX properties, both current and historic. Each data point is produced daily and contains a one-year time series for the main indicators detailed in iFlow Cloud.

- **FX Flows**: Daily net buy/sell activity normalized by trailing one-year standard deviation
- **FX Holdings:** Total of all existing exposures normalized by one-year mean absolute deviation
- **FX Profitability:** The aggregate profit and loss of each active transaction through the life of the exposure

Example:

EUR FX Flow, Holdings and Profitability, last 12 months, as of September 29, 2020

SOURCE: BNY Mellon



By presenting a time series, iFlow Chart's FX profiles provide views with an instant visual impression of outstanding exposures of a currency. Extremes become immediately visible and, when matched with other indictors and price gauges, provide opportunities to identify potential changes in trends.

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The core FX indicators displayed for each currency are flows and holdings. FX Flows are calculated through normalization (by their one-year history) of local-currency aggregate *daily* buy/sell transactions generated by clients. Holdings are constructed through aggregating the total of *all* such currency exposures currently in place, subsequently normalized by its one-year mean absolute deviation.

Compared to flows, holdings are slower-moving. Finally, to reflect the impact of transactions across tradition sessions, each exposure is assigned a daily half-life through a window of five days (including the trade date).

The charts on page 2 detail the most recent one-year time series for the euro. Immediately visible are periods of persistent directional flow and other periods where the market appears to lack conviction. July and March this year are respective examples of such distinct phases.

Upon overlaying the spot EURUSD exchange rate, we find that these phases do have information value for spot performance. For example, extremes in March flow were reflected in violent price action in EURUSD. Such episodes are rare and will have limited forward-looking predictive impact, but still hold value when assessing the impact of flow behavior volatility and investor risk management.

In contrast, the period around the June-July European Central Bank decision and EU summit led to very strong expectations of combined monetary and fiscal easing. The boost to reflation expectations in the eurozone generated a persistent period of euro inflows, which corresponded to the rise in EURUSD from 1.08 to 1.20 during the same period.

Thereafter, euro flow turned to selling but EURUSD continued to trade in a range rather than retrace gains. To investigate, we match up FX Holdings and Profitability during this period to assess the change in price behavior. As the FX Holdings and FX Profitability time series indicates, the strong buying did not lead to any over-extension in EUR longs.

Based on our methodology for holdings construction, the inflows merely moved the euro from a severely underheld position at the beginning of this phase to a more neutral position.

At no point since May this year has the euro entered an overheld position. The inference from the holdings time series is that despite the “good news” being factored into the euro, price action was more likely a case of underweight positioning being reduced (i.e., short-euro hedges being taken off) or outright shorts in FX market being unwound.

This view is supported by the FX Profitability indicator, which suggests that cumulatively, outstanding FX transactions in euros have been losing money for the bulk of H1 2020. During the summer “euro reflation” window, the transactions swung from cumulative loss to flat or marginal gain as the currency recovered. Clearly, the entry levels in euro for these positions were relatively high and recent euro appreciation has helped eliminate cumulative losses.

Once the euro’s reflation story was fully in the price, the euro entered a phase where both holdings and profitability were neutral. Given that it is when these indicators are at extremes that we normally anticipate new currency trends to emerge, the euro was more likely to range-trade for a period.

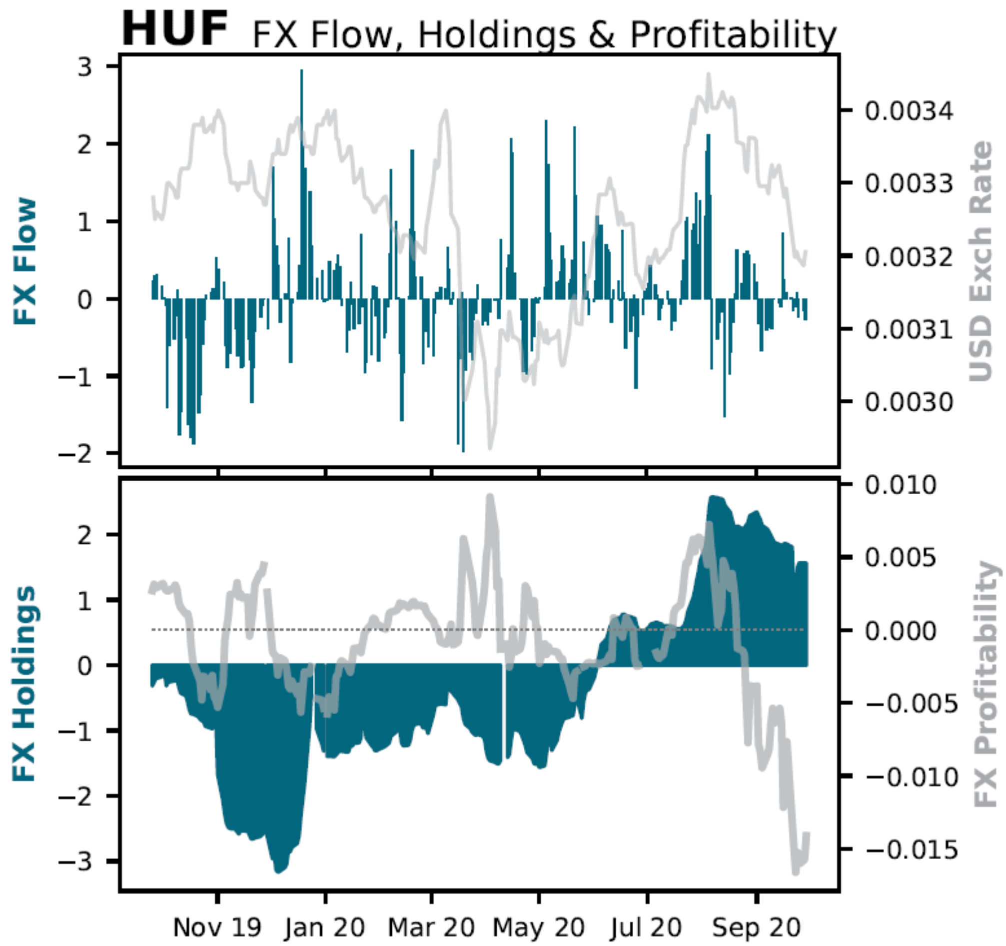
In our next example, the behavior of the HUF shows the value of identifying how combined extremes in FX Holdings and FX Profitability can signal turns in FX trends. Over a longer phase than the euro example, HUF moved from moderately underheld toward strongly overheld between mid-2020 and the end of summer. Similarly, FX Profitability turned from loss to profit – at one-year highs if we exclude the volatile phase in March.

Profit-taking from an overheld position is far more likely an occurrence, and the HUF exchange rate began to turn. This possibly left some latent purchases in HUF in a vulnerable position, and that had to be unwound. Combined with the reduction in previously overheld exposures, the exchange rate faced additional downward pressure from the combined liquidation.

Example:

HUF FX Flow, Holdings and Profitability, past 12 months, as of September 29, 2020

SOURCE: BNY Mellon, WM/Reuters



Asset Class Charts – Revealing Investor Trends

When FX transactions don't fit the macro narrative

iFlow Monitor also tracks flows in equities and bonds in our custodial asset base. Despite being cross-border in nature, the precise FX impact is subject to different variables, such as hedge ratios and issuing currency. In addition, a country may choose to issue securities (especially bonds) in a currency other than its own, or companies may issue equity in a separate jurisdiction. Nonetheless, as with FX, the principle that persistent daily flow into a particular issuing country should have a discernible impact on price levels of the assets in question should also apply.

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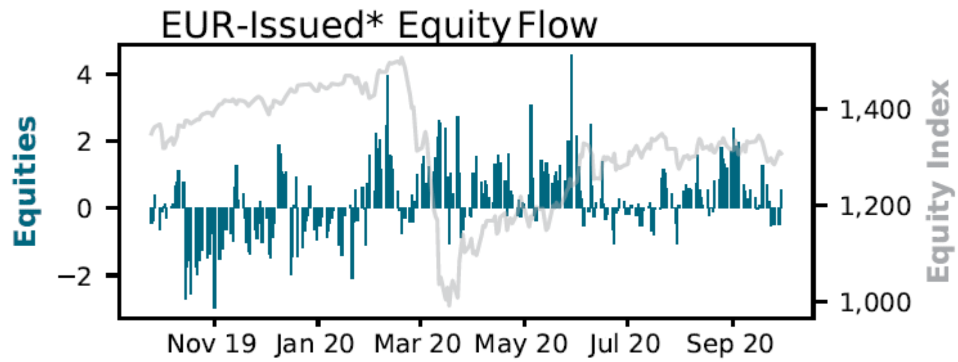
Example:

EUR-Issued* Equity Flow, as of September 29, 2020

includes all currency denominations, EUR or otherwise

SOURCE: BNY Mellon, MSCI, Bloomberg



This is probably easiest to quantify in equity markets, where most countries will have an identifiable benchmark equity index (in iFlow Chart, we use MSCI local currency indices) to reflect price impact from transactions. Using the eurozone again as an example, similar to the parameters for the FX charts, the chart below displays a one-year time series of scored flows for eurozone equities.

It suggests that throughout the past 12 months, investor interest has noticeably turned from selling to buying interest. While there was also a noticeable pickup in purchases since the July eurozone summit, buying through the year has been persistent and independent of market developments around the pandemic – in contrast to the exchange rate. We believe the purchases reflect a need to correct the persistent underweight of eurozone equities established in recent years, and this will happen mostly likely at the expense of US equity holdings.

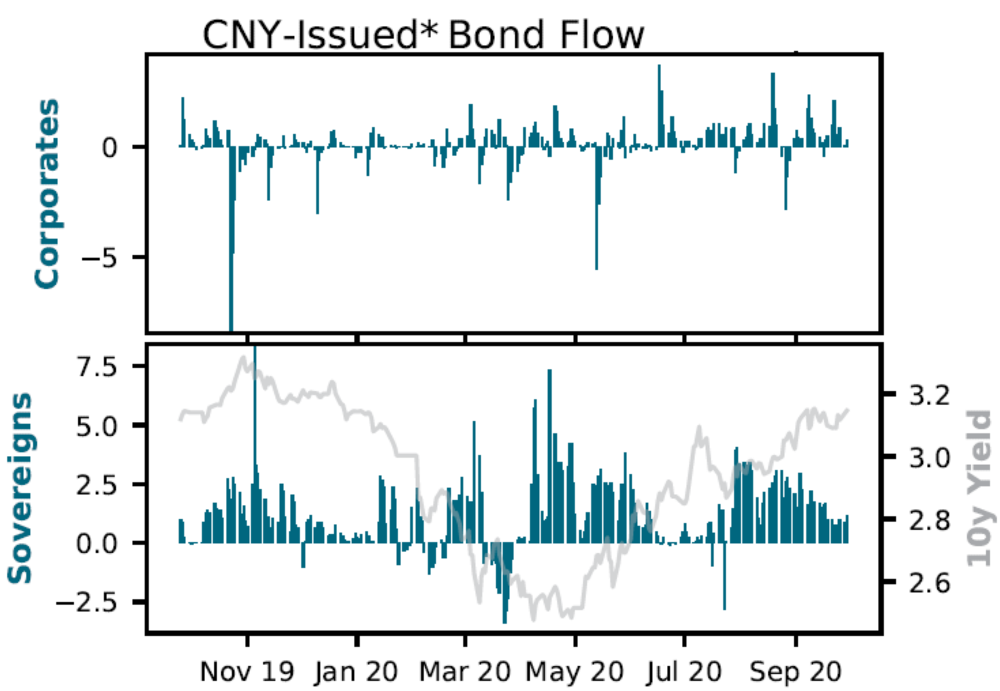
For bond flows, we are now able to provide an additional layer of information by dividing investor transactions into corporate and sovereign flow. Similar to the FX and Equity time series, we use Bloomberg's benchmark 10-year yield as a price indicator for sovereigns and will adopt a corporate counterpart in time.

Example:

CNY-Issued* Bond Flow, as of September 29, 2020

includes all currency denominations, CNY or otherwise

SOURCE: BNY Mellon, MSCI, Bloomberg



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We acknowledge that fixed income flows would encompass all maturities, and debt profiles can be vastly different between different jurisdictions. Some markets are corporate-dominated as opposed to sovereign, while other markets focus on local currency debt versus hard currency. Many European countries have also started to lengthen maturity profiles so bond flows may not be as sensitive to a particular benchmark yield. Lower bond prices can also generate demand if higher yields (nominal and real) attract more inflows if the market is in a carry-seeking phase.

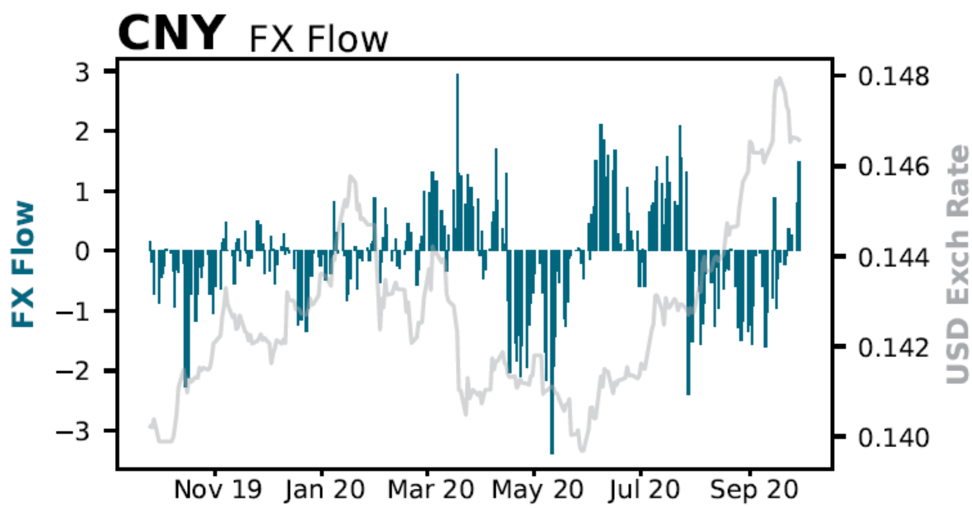
One of the most important aspects of iFlow Chart is its ability to make cross-market assessments, especially in emerging markets where underlying asset flow tends to drive FX, as opposed to G10 stand-alone FX investments. FX hedging is prevalent in many markets that issue local government debt, resulting in FX flow and holdings data running counter to what spot FX and asset class flows indicate.

We have been witnessing this phenomenon in China in the past few months. As highlighted in much of our recent flow work, Chinese Government Bond purchases have soared of late due to market liberalization and attractive yields. However, FX transactions have pointed to the opposite story, where persistent selling is shown. As our FX Flow incorporates forward and swap positioning, we believe the FX Flow indicator is indicative of strong hedging demand, while FX Positioning is showing a steady accumulation in forward contracts hedging the underlying CGB exposure.

Example:

CNY FX Flow, as of September 29, 2020
****includes all currency denominations, EUR or otherwise***

SOURCE: BNY Mellon, MSCI, Bloomberg



We would highlight that the strong bond purchases for a sovereign fixed income market dominated by local currency issuance would also reflect strong spot FX demand, even if the FX Flow indictor suggests otherwise. By nature, fixed income FX hedge ratios are high, but many investors would also incorporate FX into total return profiles. Changes in the balance over time is reflective of investors' evolving fundamental views on a particular market. In time, following the time series can reflect how hedge ratios evolve relative to individual bond market performance. At extremes, there is potential for predictive value for spot markets.

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Strengthening Time-Series Analysis for iFlow

iFlow Chart is about context and evolution

iFlow Chart strongly complements our existing suite of indicators.

Our iFlow Monitor already shows how FX flows relate to investment styles over time. iFlow Chart provides regular updates on the evolution of individual flow behavior on a multidimensional level, providing the context for future changes and how they would relate to changes in asset prices.

We have further expanded the currency universe compared to existing iFlow indicators to now include 37 currencies – with AED and EGP notable additions as bond markets in the region expand their standing within the global investment community.

On a cross-asset level, the analysis provides insight into asset allocation trends and hedging behavior. The further separation of corporate and sovereign fixed income allows us to consider the idiosyncrasies of individual bond markets and identify any shifts in investor preference – which may or may not have an FX impact.

The underlying data is available on a daily basis, but it is our current intention to publish the chart pack on a weekly basis. In time, we are seeking to strengthen our time series generation capabilities to deepen our understanding of flow behavior across asset classes.

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