EU & UK Liquidity Risk Regulatory Developments in Investment Funds

How J.P. Morgan Can Help

June 2021

J.P.Morgan

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Regulatory Developments

In the summer of 2020 J.P. Morgan Securities Services published a client briefing on Liquidity Management in Investment Funds - Global, UK and EU Regulatory Developments and Practical Considerations which highlighted the heightened global regulatory scrutiny of liquidity risk in investment funds and discussed the various Liquidity Management Tools (LMTs) available to fund managers and how J.P. Morgan supports them as a service provider.

Market turmoil of 2020 amid the impact of the COVID-19 pandemic has further intensified regulators' focus on uplifting existing regulatory standards, where deemed warranted, in order to ensure that liquidity risk is adequately managed to safeguard investors' interests. In this briefing, we discuss the latest key regulatory policy developments with respect to liquidity risk in investment funds and provide an update on how J.P. Morgan can support clients in meeting their regulatory obligations.

Global Regulatory Developments

Following the original publication of its Recommendations for Liquidity Risk Management for Collective Investment Schemes (CIS) in 2018, in March 2021 the International Organization of Securities Commissions (IOSCO) embarked on a Thematic Review to assess the implementation of its recommendations by member jurisdictions around the globe.

IOSCO also aims to gather information about how the entities to whom the recommendations are directed (responsible entities) have implemented them in practice. It expects to publish the findings of this review in the autumn of 2022. Together with the Financial Stability Board (FSB), IOSCO is also conducting a joint analysis of the availability, use and impact of liquidity risk management (LRM) tools for open-ended funds.

EU Regulatory Developments

- **European Securities and Markets Authority (ESMA) Report on Common Supervisory Action on Undertakings for the Collective Investment in Transferable Securities (UCITS) Liquidity Risk Management**
  In March 2021 ESMA published its report as a conclusion to its Common Supervisory Action (CSA) on UCITS liquidity risk management which was originally announced in January 2020. ESMA's report is a culmination of a substantial piece of work conducted by the National Competent Authorities (NCAs) through a two-phased assessment of compliance by UCITS fund managers with LRM rules. In phase one, NCAs sourced quantitative data from a large population of UCITS fund managers across EU Member States to get an overview of the supervisory risks faced. In the second phase, NCAs carried out a more in-depth supervisory analysis on a sample of UCITS fund managers and funds.

  Following the assessment of the information gathered by the NCAs, ESMA concluded in its report that "overall most UCITS managers have demonstrated that they have implemented and applied sufficiently sound LRM processes". At the same time, ESMA pointed out that there is room for improvement with regard to the following areas including, but not limited to: documentation of LRM arrangements, processes and techniques, LRM procedures and quality of LRM mechanisms and methodology.

  ESMA directed market participants to critically review their LRM frameworks to ensure that none of ESMA's adverse supervisory findings in the report are to be found in their LRM frameworks. ESMA also requested that NCAs undertake follow-up actions on individual cases to ensure that regulatory breaches as well as other shortcomings or weaknesses identified are remedied.

- **ESMA’s Report on the European Systemic Risk Board (ESRB) Recommendations on Liquidity Risk in Investment Funds**
  In response to the ESRB’s recommendations, in November 2020 ESMA published its report focused on the preparedness of investment funds with significant exposures to **corporate debt** and **real estate assets** for potential future adverse liquidity and valuation shocks and included analysis of a number of the investment funds it reviewed. Notably, the report sets out five priority areas to enhance investment fund readiness: (1) ongoing supervision of the alignment of the funds’ investment strategy, liquidity profile and redemption policy (2) ongoing supervision of liquidity risk assessment (3) establishing and reporting of fund liquidity profiles (4) increase of the availability and use of LMTs and (5) supervision of valuation processes in the context of valuation uncertainty.

- **ESRB Response to the AIFMD Review Consultation**
  Earlier this year, in its response to the European Commission consultation on the Alternative Investment Fund Managers Directive (AIFMD), the ESRB pointed out that the current Annex IV reporting template required from Alternative Investment Fund Managers (AIFMs) does not show which LMTs are available to fund managers and under which conditions. Therefore, it is difficult for authorities to gauge the possible use of these liquidity tools and the implications for financial stability in times of stress. As a result, in its response to the consultation, the ESRB put forward a set of recommendations of possible enhancements to the Annex IV reporting template.

Ireland Regulatory Developments

On May 18, 2021, the Central Bank of Ireland (CBI) published an industry letter following ESMA’s project to review liquidity risk management frameworks for UCITS as discussed earlier in this briefing. In its letter, which is addressed to all Irish authorized UCITS managers, the CBI directs them to carry out a review of their LRM practices, documentation, systems and controls. The CBI’s expectation is that this review will be completed, and an action plan discussed and approved by the board of each UCITS manager by the end of fourth quarter of 2021. Earlier this year, the CBI also issued a letter to fund management companies (FMCs) that were surveyed as part of the ESRB/ ESMA liquidity risk project. The letter requires in-scope FMCs to consider how LRM frameworks and fund structures should be adapted and the steps needed to increase funds' resilience to future shocks. This consideration is to be concluded and the results presented to and approved by the board of the FMC by June 30, 2021.

Luxembourg Regulatory Developments

In Luxembourg, liquidity risk remains a key supervisory priority for the Commission de Surveillance du Secteur Financier (CSSF) as highlighted at an industry event earlier this year. In September 2020, the CSSF issued Circular 20/752 which integrated the September 2019 ESMA guidelines on liquidity stress testing in UCITS and AIFs into the CSSF’s regulatory framework. Later in 2020, the CSSF published the final ESMA report relating to the ESRB Recommendation on Liquidity Risk in Investment Funds to the Luxembourg market. Towards the end of 2020, the CSSF published Circular 20/762 on the implementation of stress testing to assess the interest rate risk arising from non-trading book activities.

UK Regulatory Developments

In the UK, the Financial Conduct Authority (FCA) and the Bank of England (BoE) have continued to focus on the issue of liquidity mismatch in open-ended funds amid ongoing concerns that it could be a source of systemic risk for the wider financial markets.

In March 2021, the BoE and the FCA published a report setting out the findings of a joint survey which they conducted as part of their wider review of liquidity mismatches and open-ended funds. The survey targeted primarily corporate bond funds (including high-yield bond funds) but also included mixed-bond funds and a number of small and medium cap equity funds. The FCA/BoE made several observations in their report including that: there was divergence in funds' approach to liquidity management, varying levels of sophistication were seen in how fund managers measure the liquidity of their funds' assets and managers of most corporate bond funds were seen to overestimate how liquid their holdings were.

In August 2020, the FCA consulted on proposals (to reduce the potential for harm to investors from the liquidity mismatch in open-ended property funds) which recommended a mandatory notice period before a property fund investment can be redeemed. In May 2021, the FCA published its industry feedback to the consultation. Many respondents raised concerns around operational challenges posed by a notice period approach for investment managers and other firms. The FCA indicated that it will not make a final decision on its policy position until the third quarter of 2021 at the earliest and assured the industry that it will be given a suitable implementation period in the event the FCA does proceed with applying mandatory notice periods for property funds.

J.P. Morgan Solutions and Operating Model Changes

Continued complexity of the operating environment coupled with a highly dynamic regulatory landscape pose substantial challenges for our clients in the context of being able to maintain an efficient operating model. In order to best support our clients across their constantly evolving business needs and help navigate regulatory complexity, J.P. Morgan is committed to providing a comprehensive suite of proprietary and third-party solutions – developed by our strategic partners and integrated with J.P Morgan's operating model and infrastructure – across our clients' investment lifecycle. In the context of liquidity management in investment funds, we outline below how J.P. Morgan supports its fund manager clients across our data analytics and reporting, fund accounting, transfer agency and depositary services offerings.

Liquidity Analytics and Reporting

Given MSCI's long history in liquidity research and continuous investment in developing its award-winning multi-asset class liquidity risk solutions, J.P. Morgan has partnered with MSCI to provide our clients with a subscription-based access to the LiquidityMetrics analytics and reporting tool. Since LiquidityMetrics was launched in 2013, it now serves more than 120 clients (including asset managers, asset owners, hedge funds and investment banks) with liquidity solutions globally. With this new partnership, our clients can access MSCI's liquidity risk analytics and reporting tool via J.P. Morgan - thereby eliminating the need for a separate onboarding process. Additionally, where J.P. Morgan acts as Fund Accounting provider, we have the ability to efficiently integrate the portfolio holdings data required to power the LiquidityMetrics tool.

Clients will benefit from LiquidityMetrics' comprehensive, multi-asset-class analytics and reporting framework designed to model asset liquidity. Its core functionality includes the following key features:

- **Quantification of market liquidity risk** – the tool enables portfolio managers and risk professionals to quantify market liquidity risk to estimate the interplay between transaction costs and liquidation time horizons and measure the effects of possible future actions taken on a portfolio.

- **Multiple dimensions of liquidity** - the tool references multiple aspects of an asset's liquidity, including bid-ask spread, market impact of trades, trading immediacy, market activity and market depth. LiquidityMetrics treats these as more than a mere list of distinct asset properties and instead utilizes available information to describe each asset's liquidity in a way that comprehensively addresses the multiple dimensions of liquidity, while remaining consistent across disparate asset classes. This is achieved by calibrating the liquidity surfaces that connect the transaction size and the trade horizon to the expected transaction cost for each asset.

- **Regulatory obligations** - LiquidityMetrics can be a valuable tool for fund managers to deal with a range of the U.S. and EU regulatory obligations (e.g., the U.S. Securities and Exchange Commission (SEC) Liquidity Risk Management Rule (22e-4) liquidity classification, the EU AIFMD liquidity bucketing requirement and ESMA's liquidity stress testing guidelines for UCITS and AIFs).

- **Liquidity stress testing** – is an integral part of the LiquityMetrics tool. Its users can select from a set of predefined historical stress scenarios and complement the analysis by designing forward-looking hypothetical stress tests. The stress testing framework within LiquidityMetrics is designed to be intuitive whereby users can shock various model parameters including bid-ask spreads, market elasticity, volatility or market depth.

- **Data quality** - the MSCI methodology is powered by high quality data as discussed later in this briefing.

J.P. Morgan Solutions and Operating Model Changes

> *"More clients are required to measure the liquidity profiles of their funds and stress test their portfolios under various market conditions to comply with emerging regulations. We're excited to offer a market-leading solution through the addition of MSCI Liquidity Risk to our platform."*
>
> *Richard Crozier,*
> *Securities Services Head of Product for Data and Analytics, J.P. Morgan*

Liquidity Risk Management Regulations & How LiquidityMetrics Can Help

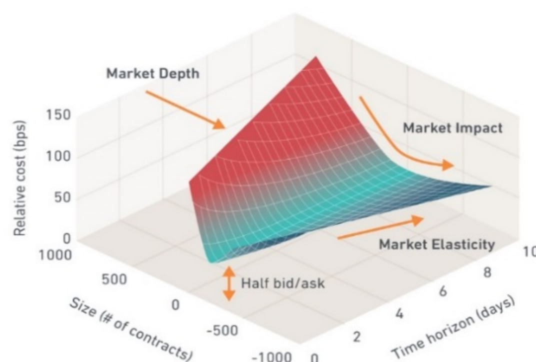
As regulators continue to uplift LRM requirements for investment managers, we have used ESMA's recently published recommended improvements for UCITS fund investment managers as a case study of how LiquidityMetrics can assist fund managers to meet regulators' expectations.

Quality of Liquidity Risk Management Mechanisms and Methodology

ESMA's observation: in some cases the liquidity risk management methodology was not always appropriate, not forward-looking and, more frequently, not justified and backtested.

How LiquidityMetrics can help:

- **Sophisticated methodology based on multiple dimensions of liquidity** - the tool views asset liquidity as more than a single, rules-based score. It may take a single day to dispose of a smaller holding in a corporate bond. However, if the holding size increases, the time it takes to sell the position may also increase. The LiquidityMetrics model is designed to differentiate such cases and it does this by considering three dimensions of liquidity: the transaction size, the trade horizon, and the expected transaction costs. In the LiquidityMetrics model, the liquidity surfaces link the three dimensions; specifying any two of these dimensions will predict the value of the third. Liquidity surfaces are defined in a granular way to capture asset characteristics.



Example of a liquidity surface (Source: MSCI)

- **Extensive coverage** - the model covers almost all publicly traded equity and fixed income asset classes by calibrating more than 50,000 equity and over 10,000 fixed income liquidity surfaces weekly.

- **Model validation** - the liquidity surfaces are calibrated on observed market data which reduces the number of heuristic assumptions. As the calibration process uses a moving lookback period, the model is reactive to market dislocations. All methodology documentation and back-testing papers are made available to model users providing a high level of transparency.

- **Trade analysis** - liquidity measures such as the bid-ask spread, the transaction cost or time-to-liquidation horizon, are calculated at the position level and further aggregated to the portfolio level. Position level breakdowns can be useful for profiling a fund and identifying the least liquid holdings. Portfolio level aggregates

provide the fund manager with a holistic view of the overall liquidity of the investments. This pre-trade analysis can help fund managers estimate the transaction costs of different redemption scenarios.

- **Stress testing** – a sound liquidity risk management program should include stress testing as key regulations such as ESMA's liquidity stress testing guidelines for UCITS and AIFs require it. Historical scenarios simulate how past crisis events would impact today's portfolios. LiquidityMetrics' historical stress tests are data-driven and cover periods such as the 2008 Global Financial Crisis and the 2020 COVID-19 pandemic. Historical scenarios can be complemented with hypothetical stress tests since future market shocks may differ from past observations. The LiquidityMetrics model enables fund managers to create their own scenarios by defining market shocks to the model parameters, including the bid-ask spreads, market elasticity or the depth of the market.

Delegation

ESMA's observation: in some cases, the separation of responsibilities between the portfolio management function and the personnel performing the LRM were insufficient.

How LiquidityMetrics can help: the risk of overreliance on portfolio managers can be mitigated by defining objective data-driven measures of liquidity. These metrics can then serve as the common language throughout an organization. LiquidityMetrics is one tool that can support clients by separating the data used by the teams and/or persons responsible for oversight of the fund's LRM from that supplied by the portfolio manager.

Data reliability

ESMA's observation: in some cases, there was a lack of data quality checks with overreliance on very few data providers and lack of robust and documented control processes with cross-checks and back-tests.

How LiquidityMetrics can help: a quantitative model is only as good as the underlying data. Data quality and reliability is therefore of utmost importance. LiquidityMetrics integrates high quality trade and quote data from various vendors.

- **Equities** - the equity cost curves are calibrated by Virtu Financial[1] and rely on multiple sources of data. The Virtu Financial model uses median daily volume from exchanges and dark venues as this measure is more stable and more immune to any potential data issues. Volatility is calculated on a 60-day basis after removing outliers. Virtu Financial maintains their proprietary Global Peer Database which contains ex-ante order size and realized transaction cost pairs from more than 124 institutional investors.

- **Derivatives** - the listed derivatives model uses Refinitiv exchange traded data. The data undergoes outlier filtering before entering the calibration process. The liquidity surface parameters are calibrated by taking the median over the observation window which further increases resistance to data errors.

- **Fixed Income** - the fixed income model is calibrated on trade and quote data from IHS Markit. Trades and quotes complement each other. Quotes capture the additional available liquidity that did not necessarily result in a trade.

- **Data sources** - trade data is sourced from FINRA's Trade Reporting and Compliance Engine (TRACE) for over-the-

[1] Virtu Financial provides product suite including offerings in liquidity sourcing, analytics and broker-neutral, multi-dealer platforms in workflow technology and two-sided quotations and trades in equities, commodities, currencies, options, fixed income, and other securities on over 230 exchanges, markets, and dark pools.

counter transactions in eligible fixed income securities, from the Municipal Securities Rulemaking Board (MSRB) dataset for U.S. municipals, and from Euroclear for global bonds. IHS Markit collects quotes from multiple sources. They are connected to many investment banks who provide them with intraday interdealer quotes. As not all bonds trade on a daily basis, the LiquidityMetrics model groups together bonds that share similar liquidity characteristic based on the issuer name, sector, rating, outstanding amount and geographic properties. Once these homogeneous groups are defined, the observed trade and quote data is pooled at a group level and used for the liquidity surfaces calibration. As such, MSCI can proxy the liquidity of non-quoted bonds by the liquidity of similar, but more actively quoted ones.

- **Data validation -** IHS Markit operates an email parsing engine that reads and processes quotes from central dealers sent to buy-side institutions. This dataset includes the quoted prices, the associated sizes and whether a quote was indicative or executable. In addition to IHS Markit's data quality assurance process, LiquidityMetrics applies outlier filtering in the calibration process. The ESMA Guidelines require[2] fund managers to justify their reliance on third party models. To facilitate this model validation exercise, MSCI makes its liquidity backtesting papers available to model users.

Internal Control Framework

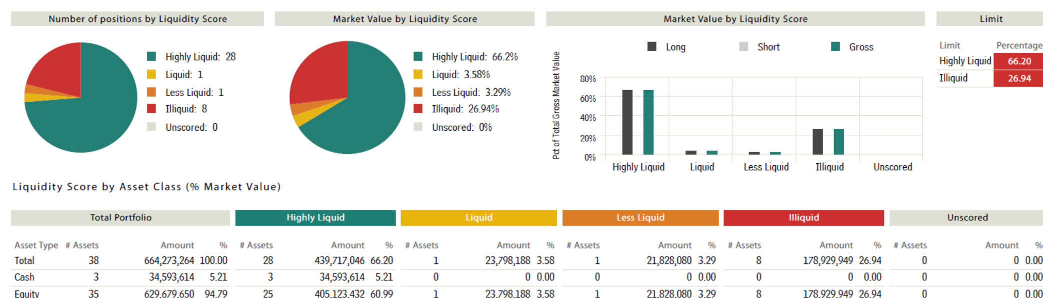
ESMA's observation: in some cases there were no 2nd or 3rd level controls of LRM policies and procedures, and as a result control functions were unable to detect regulatory breaches. The UCITS funds and their fund managers were not always subject to external controls, in some cases reflecting divergent national rules and practice across EU Member States.

How LiquidityMetrics can help: fund managers can use LiquidityMetrics to build automated downstream control processes to define early signals of increased liquidity risk. Fund managers may take different approaches tailored to the characteristics of the fund. Examples of control processes are as follows:

- **Time-to-Liquidation** - one of the most widely used measures of liquidity is the expected trade horizon, i.e., how long it takes to sell a position without a significant price impact. This time-to-liquidation measure is calculated for all positions and can be used to identify the least liquid holdings. Based on the time-to-liquidation horizon, holdings can be assigned to predefined and customizable liquidity buckets. The proportion of less liquid holdings breaching a certain limit may, for example, trigger the LRM oversight team to closely analyze the results and take corrective actions. The image below from a LiquidityMetrics report depicts the liquidity buckets by market value, position and asset class. Breaches of the predefined liquidity limits are highlighted (top right of the image) and can be used to warn of elevated levels of liquidity risk.

PORTFOLIO LIQUIDITY PROFILE
LIQUIDITY SCORES

COMPANY: Sample Portfolio
PORTFOLIO: Equity Sample Portfolio
CURRENCY: EUR
ANALYSIS DATE: April 13, 2020
PORTFOLIO AS-OF DATE: April 13, 2020



Total Portfolio				Highly Liquid			Liquid			Less Liquid			Illiquid			Unscored		
Asset Type	# Assets	Amount	%	# Assets	Amount	%	# Assets	Amount	%	# Assets	Amount	%	# Assets	Amount	%	# Assets	Amount	%
Total	38	664,273,264	100.00	28	439,717,046	66.20	1	23,798,188	3.58	1	21,828,080	3.29	8	178,929,949	26.94	0	0	0.00
Cash	3	34,593,614	5.21	3	34,593,614	5.21	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
Equity	35	629,679,650	94.79	25	405,123,432	60.99	1	23,798,188	3.58	1	21,828,080	3.29	8	178,929,949	26.94	0	0	0.00

Front page of a LiquidityMetrics standard report (Source: MSCI)

[2] Guideline 37 of the Guidelines on liquidity stress testing in UCITS and AIFs

J.P. Morgan Solutions and Operating Model Changes

- **Redemption Coverage Ratio** - another important measure of liquidity is the monetary value of assets that can be converted to cash over the redemption notice period. The redemption coverage ratio metric of the LiquidityMetrics standard report measures the ratio of this available liquidity to the dollar amount of expected liabilities. This metric effectively measures how much excess liquidity the fund has compared to the forecasted liabilities. If the ratio equals one, the fund just has enough liquidity to meet all liabilities. If it falls below one, the fund faces liquidity shortage indicating the fund cannot honor all of its liabilities in a timely manner. It is a good practice for the risk control functions to monitor this measure and to define a minimum threshold. The image on the right highlights the Redemption Coverage Ratio matrix from a LiquidityMetrics standard report. The columns correspond to user-defined liability scenarios which capture the percentage amount of expected liabilities under normal and stressed market conditions. The rows specify the market liquidity scenarios. In this example, besides the normal market scenario, the fund's liquidity was calculated under various historical and hypothetical stress scenarios. The four historical stress tests were calibrated by MSCI and the additional hypothetical scenarios were defined by the model users. In this example, the user-defined minimum threshold on the ratio is set to 2.0 and the breach of this threshold is highlighted in red.

Stress	Liability 1%	Liability 10%	Liability 15%	Liability 20%
Base scenario	78.00	7.80	5.20	3.90
GFC: Build-up	75.00	7.50	5.00	3.75
GFC: Peak	58.64	5.86	3.91	2.93
GFC: Recovery	72.01	7.20	4.80	3.60
GFC: Worst week	37.99	3.80	2.53	1.90
User scenario 1	78.00	7.80	5.20	3.90
User Scenario 2	75.05	7.50	5.00	3.75
User Scenario 3	78.00	7.80	5.20	3.90

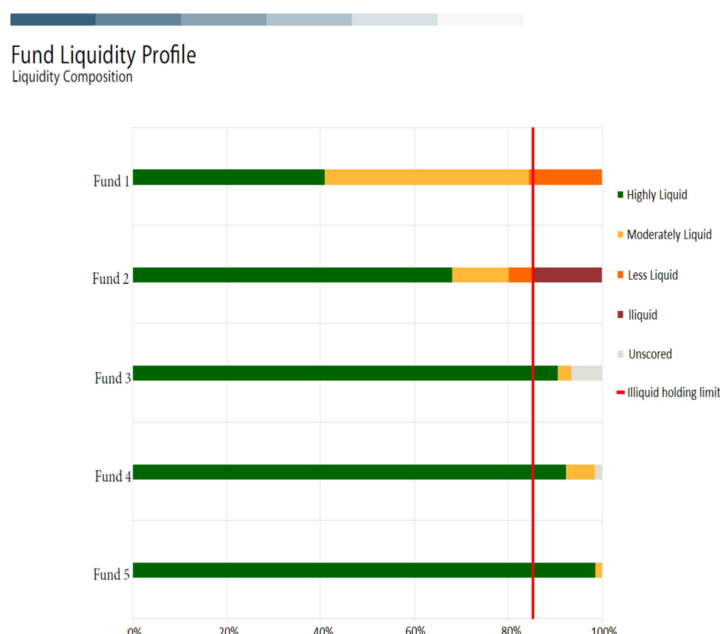
Redemption coverage ratio matrix from a LiquidityMetrics standard report (Source: MSCI)

The LiquidityMetrics user interface can be used for on-demand analyses. This can be useful for the investment team to differentiate between potential investment opportunities. Risk control functions can set up ad-hoc what-if analyses in anticipation of events that may impact the portfolios, e.g., elections or political summits.

Governance

ESMA's observation: insufficient reporting to senior management in some cases.

How LiquidityMetrics can help: the visualizations in the LiquidityMetrics reports are designed to give boards and senior management a clear view of the extent of liquidity risk a fund faces. The fund level reports, as shown in the image above, provide a visual representation of a single fund's liquidity. LiquidityMetrics also designed a higher level group or aggregate view. In the group level report, as shown in the image to the right, multiple funds of the same investment company are displayed. In this example, based on the requirements of the SEC LRM Rule, liquidity bucketing rules were applied. Establishing a percentage threshold of illiquid assets can give an intuitive visualization of the overall liquidity at the company level. At the same time, the report can be used to flag those individual funds which require a deeper investigation from a liquidity standpoint. Depicted in this image, Fund 2 is close to breaching the 15% illiquid holding limit and should be subject to further analysis.



Example of a LiquidityMetrics aggregate report (Source: MSCI)

J.P. Morgan Solutions and Operating Model Changes

For more information on LiquidityMetrics please reach out to either your J.P. Morgan representative or directly to our Data & Analytics Sales team (DataAnalytics_Sales@jpmorgan.com)

Fund Accounting

Anti-dilution techniques are some of the liquidity management tools generally available to fund managers across different types of funds. J.P. Morgan, in its role as a Fund Accountant, currently supports funds employing anti-dilution techniques including swing pricing, dual pricing and dilution levies. We compute and publish swing prices or dual prices as applicable and manage cap stock processing to ensure the correct accounting treatment of component parts of unit creations and liquidation. Additionally, periodic reporting (including priced portfolio information reflecting bid-ask prices and the mid-price typically employed in the fund valuation as well as data on visible transaction costs as captured through the accounting record) is supported for clients. This information can be utilized by fund managers in estimating dilution impacts.

Transfer Agency

As a Transfer Agent, J.P. Morgan supports clients with reliable and timely data by providing several options with regard to transaction data reporting. Clients can receive: transaction data feeds (ranging from 5 minute intervals to once per day) via Secure File Transfer Protocol connectivity; daily transaction reporting via email; access to the Transfer Agency Portal which provides clients with real time downloadable data on investor and redemption activity. This data can be readily incorporated into reporting provided to senior management and/or fund boards to support the level of governance expected by regulators. As a Transfer Agent, J.P. Morgan also supports a range of liquidity management tools as discussed in detail in our 2020 client briefing on Liquidity Management in Investment Funds - Global, UK and EU Regulatory Developments and Practical Considerations.

Depositary Services

The depositary performs oversight of certain fund manager obligations, including ensuring that fund valuations, cash flows and procedures for investor dealing are carried out in line with fund documentation and applicable regulations and national laws. J.P. Morgan Depositary Services has initiated and completed a number of changes to its oversight model, including ongoing assessment of client funds and fund manager controls, in response to regulatory and client expectations. This includes enhanced monitoring of significant fund NAV movements and verification that managers have an appropriate liquidity stress testing process in place.

Depositary Services continues to develop its oversight and screening controls, reflecting experience during the current pandemic and the supervisory approach of regulators. Clients in all locations are encouraged to engage with their depositary and regulators at the earliest opportunity where investment funds are facing potential liquidity stresses.

Regulators have rapidly responded to market stress events by introducing new rules and/or enhancing existing regulatory frameworks. It is also anticipated that there will be additional focus on liquidity controls as national governments seek to develop fund regimes targeting long term investments such as infrastructure and private equity to aid economic recovery from the COVID-19 pandemic. J.P. Morgan continues to engage with clients, regulators, and industry trade bodies to develop and enhance best practices.

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