AMIC/EFAMA REPORT ON LIQUIDITY STRESS TESTS IN INVESTMENT FUNDS 2019

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1. Executive Summary

The International Capital Market Association's (ICMA) Asset Management and Investors' Council (AMIC) and the European Fund and Asset Management Association (EFAMA) present a joint paper on liquidity stress tests in investment funds.

The purpose of this paper is to highlight the role of stress tests in investment funds, and, to contribute to the more general international debate on how investment funds can efficiently manage risks stemming from their activities in capital markets.

In reviewing the role of liquidity stress testing (LST) in investment funds, AMIC and EFAMA conclude that LST is an important risk management tool allowing the fund manager to assess the impact of different market stresses at the portfolio level.

Stress testing has long been standard practice in the fund industry and has been strictly regulated by European and national laws for many years and closely supervised by relevant national competent authorities (NCAs).

This paper reviews the regulatory framework in Europe for stress testing investment funds, in the UCITS and AIFM Directives, in the CESR Guidelines on Risk Measurement and the Calculation of Global Exposure and Counterparty Risk for UCITS. Both the UCITS and AIFM Directives require managers of UCITS or AIFs to perform periodic liquidity stress tests. While we acknowledge that managers cannot use stress testing to mitigate against all financial crises, this regulatory setup has consistently proven efficient and robust, including during challenging market events such as the euro crisis and post-Brexit referendum.

The paper also examines international regulatory developments regarding liquidity stress testing, most notably initiatives by IOSCO and ESRB. We note that in an international context, the AIFMD, which was developed after the global financial crisis, has given Europe a regulatory edge over other regions.

We also observe some emerging industry best practices on LST, including liability stress testing, market stress testing, reverse stress testing, and recent experiences with real estate funds in Germany and the UK. A consistent theme throughout is the critical need to maintain a sufficiently flexible approach, to allow fund managers to appropriately tailor stress tests to the circumstance of each fund, its investment strategy, and its investors.

The paper also examines the emerging international debate on macro stress tests. AMIC and EFAMA conclude that the industry sees little benefit in aggregating stress test results by asset class or by fund type.

In conclusion, AMIC and EFAMA suggest a number of recommendations to improve the environment for LST in Europe.

- We do not believe changes to Level 1 legislation are necessary at this stage. Given the robust EU regulatory framework, the role of regional and national authorities should be to focus on minimising operational impediments and facilitating asset managers' liquidity risk management tasks, by ensuring there is a broad availability of liquidity management tools at their disposal.
- A principles-based approach on LST governance and oversight is the best way forward.

- Proportionality is critical for setting the right framework for LST, allowing the heterogeneous fund sector to tailor stress tests to their respective investors and invested assets.
- While the availability of, and access to data with regard to underlying investors remains a key challenge, there is an important role for regulators providing further support to asset managers to obtain the appropriate information from a redemption risk perspective.

2. Introduction

This report by the ICMA's Asset Management and Investors Council (AMIC) and the European Fund and Asset Management Association (EFAMA) outlines current liquidity stress testing (LST) regulations in Europe, as well as current practices in the European fund industry.

This is the third joint report by AMIC and EFAMA
. It follows a paper on liquidity risk management in 2016[1] and a paper on leverage in 2017[2], where we reviewed the existing legislation governing European funds and evolving industry practices to manage liquidity and leverage risks.

Before we address the issue of LST, it is important to comment on the role that the fund management industry plays within the wider financial system. It is critical to stress that whilst fund managers provide liquidity as part of their fiduciary role in buying and selling investments for individual funds, managers do not exist to make markets or to supply the financial system with liquidity.

The fact that market structures and the role of market participants in terms of their contribution to market liquidity are evolving[3] does not alter this. In their efforts to carry out their fiduciary duties, managers are subject to the dynamic and evolving nature of market liquidity in the same way as other market participants. In the context of market liquidity, managers are, however, responsible for ensuring they can meet investor redemptions requests according to the terms of the fund. It is essential that managers are given an array of appropriate tools to deal with liquidity crises when they arise.

LST is an important analytical input/measure in the overall risk management process in investment funds. It allows the fund manager to assess the impact of different stresses at the fund level. Stress testing has long been a customised practice in the fund industry and has been regulated for years by European and national laws. It is also being closely supervised by the relevant national competent authorities (NCAs).

This paper identifies a number of key observations on the basis of the liquidity stress tests currently being performed at the level of individual funds, which also form part of the overall independent risk management function. Moreover, the paper sets out how existing European rules governing stress testing are at an advanced level in Europe, and how they help to appropriately mitigate risks and protect investors at the individual fund level. This in turn helps provide financial stability to the wider financial system.

This paper also addresses the latest regulatory developments and the emerging debate on macro stress tests, and system-wide stress tests incorporating investment funds. We conclude with our thoughts on a potential need for any future legislative and regulatory actions regarding LST in the EU.

[1] https://www.efama.org/Publications/EFAMA_AMIC_Report_Managing_Fund_Liquidity_Risk_Europe.pdf
[2] https://www.efama.org/Publications/Public/170719_AMIC%20EFAMA%20leverage%20paper.pdf
[3] As illustrated, for example, in the report of the European Commission's expert group on corporate bond markets issued on 20 November 2017

3. European regulation on LST

The current regulatory framework for EU investment funds already provides managers an appropriate framework to implement liquidity stress tests appropriate to their funds and clarity to regulators as to how this is done.

EU regulatory provisions on fund stress tests are currently provided by the Alternative Investment Fund Managers Directive (AIFMD)[4] and the Undertakings for Collective Investments in Transferable Securities (UCITS) Directive[5]. The recently agreed Money Market Fund Regulation (MMFR)[6] also contains significant details to answer the specifics of money market funds, including forthcoming guidelines from ESMA. However, this report will focus generally on LST for AIFs and UCITS funds.

Both the UCITS and AIFM directives require managers of UCITS or AIFs to perform periodic LST, although we acknowledge that managers cannot use stress testing to mitigate against all financial crises. This current regulatory framework for LST has proven efficient and robust over the years and in recent times, including during challenging market events such as the euro crisis or post-Brexit referendum.

It is important to remember that fund managers are not themselves responsible for ensuring market liquidity, as they are simply part of the buy-side, and act exclusively on behalf of their clients. Their responsibility lies in ensuring funds can manage investor liquidity calls in accordance with regulatory obligations as to the ongoing provision of liquidity and the fund documentation - by making use of the fund liquidity risk management tools to deal with such situations.

3.1 UCITS Directive

The Level 2 UCITS rules in Commission Directive 2010/43 specifically include provisions requiring UCITS management companies to conduct LST where they consider it appropriate.

More precisely, Commission Directive 2010/43, Article 40(3) states that "*Member States shall ensure that management companies employ an appropriate liquidity risk management process in order to ensure that each UCITS they manage is able to comply at any time with Article 84(1) of Directive 2009/65/EC.*

Where appropriate, management companies shall conduct stress tests which enable assessment of the liquidity risk of the UCITS under exceptional circumstances."

The CESR Guidelines on Risk Measurement and the Calculation of Global Exposure and Counterparty Risk for UCITS stipulate that stress tests should be adequately integrated into the UCITS risk management process and the results should be considered when making investment decisions for the

[4] Directive 2011/61/EU of the European Parliament and of the Council of 8 June 2011 on Alternative Investment Fund Managers and associated Level 2 legislation: Commission Delegated Regulation (EU) No 231/2013 of 19 December 2012 supplementing Directive 2011/61/EU (hereafter referred to as AIFM Directive)

[5] Directive 2009/65/EC of the European Parliament and of the Council of 13 July 2009 on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS) (hereafter referred to as the UCITS Directive)

[6] Regulation (EU) 2017/1131 of the European Parliament and of the Council of 14 June 2017on money market funds (hereafter referred to as the MMFR)

UCITS[7]. Moreover, the Guidelines anticipate quantitative and qualitative requirements for the risks to be covered and the appropriate design, frequency and procedures that need to be in place.

3.2 AIFMD

The AIFMD contains more granular rules on LST than the UCITS legislation, which is not surprising given the more recent adoption of AIFMD as well as the much wider universe of funds in the scope of the Directive. Both the Level 1 Directive and implementing (Level 2) regulation contain specific requirements on AIFMs to conduct stress tests and liquidity stress tests on their funds.

The AIFMD states in Article 16(1) that:

"*1. … AIFMs shall regularly conduct stress tests, under normal and exceptional liquidity conditions, which enable them to assess the liquidity risk of the AIFs and monitor the liquidity risk of the AIFs accordingly.*"

The implementing regulation (Regulation 231/2013) contains more detail, stating in Article 48(2) that:

"*2. AIFMs shall regularly conduct stress tests, under normal and exceptional liquidity conditions, which enable them to assess the liquidity risk of each AIF under their management. The stress tests shall:*
(a) be conducted on the basis of reliable and up-to-date information in quantitative terms or, where this is not appropriate, in qualitative terms;
(b) where appropriate, simulate a shortage of liquidity of the assets in the AIF and atypical redemption requests;
(c) cover market risks and any resulting impact, including on margin calls, collateral requirements or credit lines;
(d) account for valuation sensitivities under stressed conditions;
(e) be conducted at a frequency which is appropriate to the nature of the AIF, taking in to account the investment strategy, liquidity profile, type of investor and redemption policy of the AIF, and at least once a year."

These requirements are of sufficient granularity to have helped asset managers build strong processes for stress testing at fund level.

3.3 MMFR

Money market funds are now the subject of their own specific regulation in the EU. Given the nature of money market funds and their role vis-à-vis liquidity provided to investors, the regulation is quite specific regarding stress tests that need to be performed -as set out in Article 28.

ESMA was requested to develop Guidelines with a view to establishing common reference parameters of the stress tests scenarios to be included in the stress tests that managers of MMFs are required to conduct. In this regard, ESMA published the first set of these Guidelines on 21 March 2018[8], which shall be updated at least every year, taking into account the latest market developments. In this context, ESMA already published on 28 September 2018 a consultation paper on the first annual review of the Guidelines[9].

[7] See CESR/10-788, section 3.6.5 Stress testing
[8] ESMA Guidelines on stress tests scenarios under Article 28 of the MMF Regulation
[9] https://www.esma.europa.eu/sites/default/files/library/esma-34-49-131_cp_on_mmf_stress_test.pdf

As stated earlier in this paper, the focus of the series of joint AMIC and EFAMA papers is on liquidity and leverage risks in traditional UCITS funds and AIFs, rather than the MMFs, given the specificities of the later. As such, this paper will not explore the MMFR rules in greater detail.

It is worth highlighting that the industry has welcomed the approach of ESMA notably with regard to clarity and consistency on reporting guidance on stress tests results. However, it has highlighted the importance of maintaining a principle-based approach in ESMA's Guidelines on how to calibrate and measure the impact of specific shock scenarios. In particular, the design of the stresses should account appropriately for the business model and size of asset management company. We consider that the ESMA proposal is far too prescriptive for principle-based Guidelines and may have little relation to the stresses MMFs are likely to experience.

In general, asset managers should have the flexibility to choose an appropriate methodology for stress tests and be able to calibrate the stress tests to better suit their knowledge of investors' profiles. In addition, stress testing should take into consideration the specific features of MMF as an asset class[10].

[10] These general remarks along with more detailed comments were part of the EFAMA response submitted to ESMA's Consultation.

4. International developments regarding stress tests

Since the 2008 financial crisis, authorities have rightly focused on improving risk management in the financial sector. While the initial focus was on banks and eventually insurance companies, more recently the investment fund sector has come under scrutiny, particularly from a stress testing perspective.

The work by the FSB on asset management culminated in "Policy Recommendations to Address Structural Vulnerabilities from Asset Management Activities" issued in January 2017. In this document, FSB suggested in recommendation 6 that "*Authorities should require and/or provide guidance on stress testing at the level of individual open-ended funds to support liquidity risk management to mitigate financial stability risk. The requirements and/or guidance should address the need for stress testing and how it could be done. In this regard, IOSCO should review its existing guidance and, as appropriate, enhance it.*"

The FSB also made a recommendation on macro stress tests, which we will explore in section 5 below.

IOSCO is the main source of international regulatory technical expertise on stress testing. It maintains "Liquidity Risk Management Guidelines", issued first in 2013 and updated in 2018. This is a result of the FSB's work and mandate to IOSCO. In the updated guidelines, IOSCO suggests in recommendation 14 that "*the responsible entity should conduct ongoing liquidity assessments in different scenarios, which could include fund level stress testing, in line with regulatory guidance".*

In Europe, the European Systemic Risk Board (ESRB) has also issued recommendations aimed at the investment fund sector. With reference to liquidity and leverage risks in investment funds[11], the ESRB recommends in part C on stress testing that *"in order to promote supervisory convergence ESMA is recommended to develop guidance on the practice to be followed by managers for the stress testing of liquidity risk for individual AIFs and UCITS".* ESMA announced in its work programme for 2018 that it intended to start work on such guidelines and has already convened market participants to a roundtable to progress this initiative.

It must be stressed that the AIFM Directive was initiated and adopted to answer worldwide concerns following the financial crisis, to ensure that the EU would address the concerns identified by the G20 Summit in Pittsburgh in 2009.

Due to this regional initiative, the EU is today ahead of the curve compared to other regions, particularly with regard to stress testing.

[11] The ESRB Recommendation on liquidity and leverage risks in investment funds was adopted on 7 December 2017 and published on 14 February 2018. The text of the recommendation is available here. The text of Annex I "Compliance criteria for the recommendations" is available here and the text of Annex II "Economic rationale and assessment" is available here.

5. Macro stress tests – the debate

International regulatory authorities such as the FSB[12], the AMF[13] and the Bank of England[14] released a series of discussion papers contributing to the emerging debate on macro-stress tests, where such tests are designed to assess the vulnerabilities of the whole financial system and how various actors interact in a systemic risk situation.

AMIC and EFAMA believe that the aggregation of the stress testing results at the asset class level, investment fund level and/or on client group/client level would not deliver beneficial results for regulators. Given that most funds are set up as separate legal structures, there is no interconnectedness across funds or management structure as they are managed in different ways and for different investor bases. In particular, as separate legal entities the manager does not have recourse to the assets of one fund to meet the liabilities of another fund. Even if a management company-wide view can be put in place, the decision on the exact set-up for individual funds should remain with the relevant fund manager. It is also important to recall that liquidity (liquidity risks) can only be assessed and managed at the individual fund level, not at the company level. This is because the assets and liabilities of a fund are managed at the fund (asset owner) level.

Furthermore, because liquidity risk metrics are not additive, it is difficult to understand what cross-fund comparisons and contagion effects can be drawn, and whether any suitable insights can be taken from relevant policy decisions without leading to unintended consequences. The UK commercial real estate fund experience post-the Brexit referendum result illustrates that liquidity problems may affect a sector of funds rather than specific companies.

It is, however, also important to stress that not all UK real estate funds were suspended. Several were able to continue accepting subscriptions and redemptions, supporting the earlier point that even where there is a market wide stress, the impact on funds can vary depending on their mandates, portfolios, investor bases and redemption terms. This is another reason why a one-size- fits all approach is not the way to proceed when it comes to LST.

Moreover, if there is an added value of “aggregate” results by asset class level, investment fund level and/or on client group/client level for regulators this shouldn’t be based on liquidity indicators. Rather, it should be on the basis of holdings. In addition, such “exercise” cannot be useful if limited only to asset managers, as investment funds represent only partially the asset investors’ side.

We therefore strongly believe there is no benefit to gain from aggregating testing. This would require the regulator to always go back to the individual fund stress tests results to assess risks. Overall, modelling interaction between different funds within a company - let alone across the whole fund sector - or the whole financial system, is very difficult and requires more study. We anticipate that it may lead to misinterpretation due to double counting and lack of a clear view on compensation or arbitrage factors.

[12] Policy Recommendations to Address Structural Vulnerabilities from Asset Management Activities” issued in January 2017, Recommendation 9: "where relevant, authorities should give consideration to system-wide stress testing that could potentially capture effects of collective selling by funds and other investors on the resilience of financial markets and the financial system more generally."

[13] Paper issued by the AMF on 13 June 2018 “Macro-stress tests: What do they mean for the markets and for the asset management industry?”

[14] Financial Stability Paper 42: “simulating stress across the financial system: the resilience of corporate bond markets and the role of investment funds”.

6. Key observations

6.1 A principles-based approach on the LST governance and oversight is the best way forward

A robust risk governance framework, including an independent risk management function, is fundamental to good risk management. In that context, individual fund LSTs are useful analytical tools within the liquidity risk management (LRM) function. However, they are only one part of the end-to-end LRM process and should be assessed with the other components of the risk management function.

From a conceptual point of view, it would be better to make a distinction of liquidity risks between:

- Fund liquidity risk, i.e. the possibility that over a specific timeframe a fund will become unable to settle obligations (fund redemptions for an asset manager), taking into account the liquidity terms and conditions;
- Market liquidity risk, i.e. the possibility to trade and convert to cash a given volume of an asset at short notice, at low cost and with little impact on its price.

In terms of LST, the "normal" liquidity supply situation should be the starting point, referencing at the same time historical and hypothetical scenarios both on assets and liabilities, to better understand the fund's liquidity risk. In this process the informed judgement of the fund manager/ execution desk plays a critical role given their understanding of the relative liquidity of the assets, investment strategy and the liabilities of the fund.

Hence it cannot be substituted by the advice or instruction of an external stakeholder, including a prescriptive regulatory view. Liquidity risk can be fluid and dynamic and therefore measuring such risks and conducting stress tests is more an art than a science. A principles-based approach would ensure that managers could exercise their best judgements, based on evolving market dynamics.

In that way, what is key for the implementation of the LRM, including the operation of LST, is the **necessary flexibility** of how governance is implemented and how the oversight set-up is decided upon. Such flexibility will ensure that the use and selection of stress tests is as relevant as possible to individual funds' strategies. In addition, an LST based on such individual characteristics and avoiding standardised approaches and overly detailed regulatory approaches prescribing *a priori* the governance and oversight of LST, is key to avoiding potential systemic risks. Prescriptive rules and scenarios could lead to herding behaviour in the industry, which could contribute to increasing systemic risk in the system. Moreover, it is important to keep in mind that while LST is helpful as part of a wider risk management process, the results of hypothetical LSTs should not always necessitate a mechanistic response, but instead provide a mechanism for additional review or scrutiny from the responsible person(s).

We understand the challenge in striking the right balance between a principles-based approach and an appropriate standardised framework. However, we believe this can be achieved if the key principles of proportionality and flexibility are adopted leading to a framework that recognises the necessity of tailoring LRM practices to the unique characteristics of each fund, and the different distribution channels using a risk-based approach.

In this respect, we welcome the principles-based approach taken by IOSCO in its recommendations for Liquidity Risk Management for Collective Investment Schemes[15] . We believe it provides an effective balance in providing necessary guidance while (in most cases) preserving fund manager flexibility to act in the best interests of all shareholders under a variety of circumstances.

For these reasons, we urge ESMA to recognise in its upcoming Guidance the need for sufficient flexibility allowing the heterogeneous fund sector to tailor stress tests to their respective investors and invested assets.

6.2 A proportionate approach

As mentioned above, the main component of a balanced principles-based approach in respect to setting the right framework for funds' LST, is proportionality. Each fund should be required to carry out LST, especially all types of open-ended funds, with greater analysis perhaps undertaken on funds which invest in assets at the relatively less liquid end of the spectrum (e.g. emerging market funds). For instance, a blue-chip equity fund invested in a wide range of widely traded assets with deep underlying pools of liquidity is at much smaller risk of a liquidity crunch than a credit fund.

It is, therefore, important to give managers the flexibility to tailor LST to their funds based on their liquidity profile, and, if deemed appropriate, exclude certain funds from LST, where the nature of the portfolio and client base means that liquidity risk is structurally reduced. Managers should be given the flexibility to consider thresholds and criteria to exclude funds which are relatively more liquid (e.g. large cap blue chips equity funds) or funds with relatively stable and low liability profiles from detailed LST analysis or adapting frequency and granularity of LSTs.

A key task is to identify potential material mismatches between the anticipated time to dispose of an asset and possible redemptions over various time horizons, so that remedial action can be taken, escalating only where needed.

The same proportional approach could also apply to the frequency required. In that context, a requirement for regular LSTs could be based on assumptions about historical and the hypothetical scenarios not changing significantly for assets and redemptions. However, tailoring the frequency of LSTs is worth considering, as frequency should be appropriate to the strategy of the fund.

6.3 The asset manager's role

The role of a fiduciary is to manage clients' money in accordance with the agreed investment strategy, appropriate regulations and constraints within fund documentation. As with all risks, it is incumbent on the manager to provide clear and transparent risk disclosures, so that investors are aware of and able to accept associated risks prior to investing.

With regards to liquidity, whilst underlying investments must be suitable and aligned both to the investment strategy and the liability profile of the fund, the liquidity of a fund is a function of the liquidity of its underlying investments.

Funds' abilities to raise liquidity depends on their capacity to divest the underlying investments within a given timeframe and with acceptable market impact. The changing and often binary nature of market liquidity complicates this process. Liquidity risk cannot be eradicated from the financial ecosystem without transforming the risk into one or more other risks or consequences, intended or

[15] Please see http://www.iosco.org/library/pubdocs/pdf/IOSCOPD590.pdf

unintended. In that same context, it is important to educate investors and address misperceptions that funds can deliver the benefits of returns while also providing the same or similar liquidity of a call deposit. Such perceptions are misaligned with the risks associated with investing.

Furthermore, given transaction costs, the potential market impact of a complete liquidation means that the quoted net asset value at which transactions take place does not represent the value that would be received if the entire fund were to be liquidated immediately. Nevertheless, the net asset value is a fair basis for marginal transactions. Liquidity is similar in that while in normal circumstances it is reasonable for the investor to expect managers to manage the funds so that redemptions can be met, it is unreasonable for investors to expect that all investors can redeem at the same time and in the same way.

Therefore, the objective is to balance operationalising measures designed to mitigate potential risks with the need to preserve end-investors' abilities to invest to meet their specific financial needs which frequently have a long -term horizon. In order to facilitate asset managers' liquidity risk management tasks, providing a broad availability of liquidity management tools is of utmost importance. Such tools protect investors' interest in the fund and can also effectively moderate the speed at which assets in a troubled asset class are redeemed in a crisis scenario - so that an effective and transparent application of those may be a mitigant to the risk of an escalating market crisis.

This paper is in favour of using all available methods (based on historical data or forward looking or known or hypothetical events) to obtain a complete picture of the liquidity structure. The process of monitoring and going into details should be based on size, concentration and asset class (proportionality should apply). In general, it makes sense to review the many examples of best practices and to allow managers to use appropriate factors and scenarios taking into account their underlying investors' profiles.

7. Industry practices – standard methodologies and emerging new techniques

7.1 Introduction

When modelling liquidity risks, fund managers will aim to incorporate as many data points and available methods to build the most complete picture of individual funds both in relation to assets and liabilities (e.g. redemption flows). Managers typically introduce proportionate monitoring and analysis of a fund based on its size, concentration and asset class. In general, given the limitations of prescribing a one size fits all approach, managers have the discretion to select the best modelling approach using the most appropriate factors and scenarios for their funds' investor' profiles.

We acknowledge the challenges in measuring market liquidity and predicting liquidity crises with a high degree of confidence.

As with all modelling, liquidity modelling is highly dependent on the underlying portfolio, as well as data-dependent and requires judgments as to the practical ability of a fund to sell a security, assumptions and/or the use of proxies where data availability is limited or thought to be unreliable. To illustrate these challenges, a security that trades infrequently (and therefore with few data points) is not necessarily less liquid even though most models will suggest this is the case.

Market liquidity can be difficult to measure, partly because the liquidity observed in unstressed markets cannot always be relied upon to accurately estimate risk during periods of stress. These limitations have a compounding effect which can distort the relevance, use and application of any modelling output thereby preventing managers from using the output with a high degree of confidence.

Modelling the market liquidity of over-the-counter (e.g. fixed income) securities is relatively more difficult than modelling less opaque securities that are traded on exchange.

However, it is important to note that whilst LST is helpful as part of the risk management process, and the results of hypothetical liquidity stress tests should not and do not result in a mechanistic response; rather stress tests are used as information points to highlight potential problems and possible opportunities for risk reduction. That said, the binary nature of market liquidity means that in extreme market events, liquidity shocks usually occur quickly and cannot easily be predicted by any model. With this in mind, stress tests cannot be a standalone tool to be relied upon as a way of predicting future liquidity crises.

7.2 Liabilities' stress testing

When stress testing the liabilities of a fund, managers will aim to model and stress test the different forms of liabilities such as those derived from financial derivatives investments (e.g. margin) and those arising from redemption flows. Regarding the latter, factors such as investor concentration, and the "stickiness" of investor money and fund performance are normally assessed alongside main historical flows to help form a view of likely future liabilities.

Moreover, the general knowledge of the client concentration of each fund can be important. Scenarios based on the exit of a certain number of top investors can also be very useful as can the *ad hoc* review of historical account flows to identify trends and the likelihood of any significant single client redemption. In addition, common practice apart from historical views, is to closely follow larger

investors, through direct contact and direct servicing, so that the liabilities' analysis is done with the view of grasping the main trends.

As with all modelling, having timely and accurate data is essential. When attempting to model investor behaviours, managers have several challenges. In most cases, the manager's knowledge as to the investor's degree of sophistication is limited, especially for retail investors. For many retail funds, investor transactions are incorporated into omnibus trades provided by distributors, who interact with a number of asset managers via the same account. Thus, managers with retail funds distributed by third parties do not necessarily have access to the detailed transactional history needed to fully map investor redemption behaviour across investor segments rather than individual client level data within individual funds. In such cases, a global statistical approach, potentially split by type of distribution channel will often prove very efficient to anticipate flows.

Furthermore, the knowledge and experiences in financial markets will usually depend on the type of investors. In this regard, the potential risk that the investor may overestimate the liquidity of the assets held by the fund is much more limited in the cases of funds with professional investors only. The managers of those funds have to fulfil special reporting requirements on the composition of the portfolio vis-à-vis the investors' particular regulatory requirements - such as the Basel framework for banks implemented in Europe under the Capital Requirements Directive or for insurance undertakings under the European Solvency Directive.

7.3 Reverse stress testing

Reverse stress tests are also employed by some managers to assess the "burn rate" of a fund. This calculates how long an open-ended fund can sustain itself with its cash and liquid assets before it experiences a problem.

7.4 Other dimensions of risk

Other dimensions of risks are also incorporated into this analysis, providing a more holistic view on issues such as counterparty default, risk collateral and margin demands etc. The applicability of dimensions such as these is highly dependent on the investment strategies of individual funds. Therefore, a holistic view on market, counterparty and liquidity risks is sensible. Including margin requirements and collateral changes modelling can also further determine the liabilities the liquidity risk management framework should take into account. However, as previously stated, the predictive power of stress tests is significantly limited by data availability constraints, as well as the need to employ simplifying assumptions.

7.5 Recent experiences: real estate funds

Regarding real estate funds, the reduced liquidity Germany experienced in the last decade led to the implementation of legal gates for open-ended real estate funds. Lessons learned from UK commercial real estate funds following the Brexit referendum result are highly valuable lessons for commercial real estate funds but may not be useful in stress testing other asset classes, such as corporate bond funds.

Regardless, stress tests were already an ongoing key focus before the UK EU referendum. In the context of the market turmoil following the Brexit referendum, it appeared that the relevant UK real estate funds were able to manage their potential fund liquidity risk and eventually re-opened the

possibility of redemptions after temporary suspensions together with a far greater focus on the quality of investor disclosure as to how these tools will be applied in a stressed situation.

7.6 Treatment of shareholders in asset liquidation: vertical slice vs waterfall

As mentioned above, the fiduciary duty of an asset manager is to manage clients' money in accordance with the agreed investment strategy, appropriate regulations and constraints within fund documentation. All things being equal, the treatment of all shareholders of a fund would imply that asset liquidation should ideally take place by using the 'vertical slice' approach (i.e. selling assets across all liquidity profiles).

However, this needs to be adapted in reality to account for technical constraints, costs and portfolio rebalancing opportunities. For instance, the differences in asset transaction costs (i.e. liquidation) can also play a role in determining the process of liquidating assets. So, in practice, portfolio managers might use redemptions to steer the outcome towards their model portfolio. Furthermore, fixed income portfolios with similar exposures to a single source of risk can be created by multiple securities.

Therefore, a 'vertical slice' might not be necessary to generate the same risk profile before and after liquidation. In addition, cash holdings and other instruments (repos) are also there to be used on redemptions, depending on each portfolios' assets and liabilities' specificities.

Conversely, the 'waterfall' approach in general does not allow for the perfectly equal treatment of investors, due to potential distortion both in the investment strategy and at the liquidity level. However, there are cases where the investment strategy and the best interests of investors may lead to the 'waterfall approach' being more suitable.

The overarching principle is that any adjustment to the portfolio's composition, including when triggered by redemptions or subscriptions, should result in keeping the risk profile in line with the investment objective of the fund. Portfolio managers should have the flexibility to use professional judgement to decide which approach is considered most appropriate in the market at the time of trading.

Our conclusion is that a flexible approach relying upon the expertise of individual fund managers is necessary. We believe that managers should continue to be given the room to perform their job through their expertise and avoid processes or assumptions not reflecting the real practical conditions.

7.7 Market risk

Incorporation of market risk analysis can be used to get an indication of a potential market situation, but individual fund stress testing is not expected to accurately predict the future or the behaviour of other market participants. These expectations would be beyond the scope of the current state of the practice for fund LSTs.

Decisions on extraordinary measures need to be assessed and decided at the opportune moment, given that trading as a result of redemptions is preferably done as close as possible to the valuation price. This limits the liquidity risk as a result of asset price volatility or asset price uncertainty.

Even with timely trading there might be certain scenarios in which there is significant price uncertainty. In that case one might want to resort to anti-dilution levies before restricting

redemptions; an approach which was introduced as part of the SEC 22e-4 Rule in the US. It is important to note that we generally do not see anti-dilution levies as a liquidity management tool in the same way as gates or suspension. The purpose of an anti-dilution levy is to ensure the price redeeming investors receive (or subscribing investors pay), reflects the cost of selling (or purchasing) the underlying assets, rather than the published mid-market price. Swing pricing and valuation at transacted price are also good practices that have been developed in the EU.

7.8 ETF stress tests

ETF structures (including the Authorised Participants' and other liquidity providers' roles) should be acknowledged in ESMA's work relating to LST. Caution should be paid to the resulting guidance and it should be recognised that the specificities of liquidity risk management practices appropriate to ETFs. For instance, due consideration should be given to the testing of an ETF's underlying asset market in the product's pre-launch phase, particularly as direct redemptions can only be performed by an Authorised Participant (AP) and are generally settled in-kind thus not forcing managers to the type of cash sales required for typical mutual funds. It should also be considered that investors in ETFs access liquidity by trading their shares on very liquid secondary markets. These considerations would require liquidity measures, if any, adapted to the specifics of the ETF product wrapper. LRM processes for ETFs need to reflect these specific features, as otherwise we end up artificially focussing on the direct redemption process rather than focussing on whether the standard arbitrage mechanism with the APs is operating as efficiently as possible.

8. Recommendations

8.1 Legislative actions

As a general approach, it is essential that policy developments in the area of stress testing remain proportionate due to the different characteristics in the size and activities of the asset management sector. Individual asset managers have different strategies and distribution channels, which require individual decisions on trade-offs.

Therefore, a "one-size-fits-all" approach is not appropriate for the regulation of LST, given the necessity of tailoring liquidity risk management practices to the unique characteristics of each fund. Fund managers must ensure an appropriate liquidity profile for the funds they manage.

In particular, it is interesting to see that in the wording of the UCITS and AIFM Directive, while imposing LST on all funds, these requirements are usually referred to as to be applied for *each* fund – demonstrating that only an approach at each fund level is really meaningful to manage risks in an appropriate manner.

Therefore, AMIC and EFAMA do not believe that Level 1 legislative change is required to the UCITS Directive and AIFMD. Further regulation on liquidity metrics may limit a manager's ability to efficiently manage the liquidity of certain funds, especially if addressed as one-size-fits-all liquidity limit/metric that would turn to be a box-ticking exercise.

8.2 Role and responsibility of regulators

8.2.1. To provide appropriate guidance and an updated list of liquidity tools

General guidance at EU-level on how to implement liquidity tools could be helpful for management companies as long as it remains on a principle-based approach. This ensures the discretion of the manager is in place on the choice of the appropriate tools. The use of liquidity management tools should be made dependent on concrete circumstances and should vary according to the nature, scale and investment strategy of the investment fund.

It is important to stress that national and European authorities are also involved in the oversight of risk liquidity management, both through the approval of new funds' liquidity profiles and risk management processes, and by monitoring how the process works under stressed market conditions.

Moreover, industry would benefit from enhanced guidance on the implementation of the existing liquidity requirements in a way that these would apply in a more consistent way across asset managers. Such guidance should be flexible enough to identify the intricacies of implementing liquidity tests on different asset classes and implementing in multi-asset portfolios. To the appropriate extent, ESMA may also wish to update the CESR Guidelines to take into account the policy recommendations from IOSCO.

We believe that regional and national authorities should take proactive steps to monitor the use of liquidity tools introduced in the EU during the last decade across a significant number of Member States (as referred to by IOSCO in its mapping exercise). This would help to minimise operational impediments that hinder fund manager LRM efforts. In addition, it should be emphasized that applying certain permissible and transparently disclosed LRM tools during market dislocations should not be mistaken as a failure of a product or an asset manager.

In this context, it is important for ESMA to encourage NCAs to ensure consistent availability of different types of liquidity tools across jurisdictions and to extend the existing operational and legal liquidity tools available to investment funds by taking into consideration existing tools in a number of jurisdictions, such as gates or swing pricing (presented in further details in the AMIC/EFAMA report on Managing fund liquidity risk in Europe[16]). This would be the optimal way to promote a cutting edge EU approach on LRM tools.

Where necessary, professional associations for the investment fund industry could also consider providing guidance to their fund manager members, to help them with what should be considered as the most appropriate LRM tools depending on circumstances in different jurisdictions. However, where such guidance is necessary, it should complement the regulatory framework and avoid outcomes which could fragment liquidity risk management practices in Europe.

8.2.2. Facilitate access to data

National authorities should provide more support to asset managers to overcome challenges in obtaining more information on underlying funds' investors from distributors. From a redemption risk perspective, availability of and access to data remains the main challenge.

For many retail funds, investor transactions are incorporated into omnibus trades provided to fund managers by fund distributors who sell products issued by a number of asset managers. Thus, asset managers with retail funds distributed by third parties do not necessarily have access to the detailed transactional history needed to fully study investor redemption behaviours across investor segments within individual funds. The key overall objective remains for both market participants and regulators to be able to get the complete picture of the distribution of funds' liabilities.

The access to such additional data should aim at highlighting the set of useful information points that can improve the stress tests models through better profiling of underlying investor types. This type of data would include data sorted in a more generic way – e.g. by number of underlying investors and investor types – and differentiating between investors who are incentivised to redeem, or not, (e.g. in tax incentivised accounts or pensions savings account) and those investor types who are more volatile.

It is therefore very beneficial that national authorities support asset managers in obtaining more information on funds' investor base from distributors. In this respect ESMA could facilitate progress by organising a roundtable discussion with some of the major transfer agents' and registrars as to what level of granularity could be provided without an excessive cost burden. It is also necessary that national regulators give due consideration to the importance of the availability of comprehensive and good quality trading and other market liquidity data for OTC instruments, such as bonds and derivative. Without these, liquidity quantification (including stress testing) is somewhat limited.

8.2.3. Stressed market conditions

Finally, in stressed market conditions, fund managers should remain the first line of defence in implementing appropriate liquidity risk management tools as foreseen in their respective stress tests and established fund lifecycle and governance arrangements. Furthermore, such tools should be tailored by the fund manager to a specific event occurring.

While the heterogeneity of the investment fund world means heavy handed intervention by authorities could adversely and unnecessarily affect many investors in funds, decisions on measures should remain with the fund manager. What is to be expected by national authorities in such

[16] https://www.efama.org/Publications/EFAMA_AMIC_Report_Managing_Fund_Liquidity_Risk_Europe.pdf

conditions is to implement efficient “market circuit breakers” in case of large market moves, to slow down price drops or redemption snowball effects.