Arkus Financial Services – *September 2020*

Liquidity Risk Reporting Solution

Industry regulators and independent bodies have continuously stressed the importance of investment funds embracing a robust liquidity risk management framework and policy, not only to conform to the respective guidelines but to ensure industry best practises are adopted.

At Arkus we have worked on providing a cost-effective liquidity risk reporting solution through our online risk monitoring platform, RiskRadar.

Document Overview

The following document highlights the approach adopted by Arkus to assess the liquidity risk for both the asset and the liability side of a monitored portfolio.

ESMA Guidelines on Liquidity Risk Management

Arkus' liquidity risk reporting covers the requirement for liquidity risk management for Collective Investment Schemes (CIS) under the UCITS or AIFMD regime stemming from European regulation and implementation in local laws thereof.

Additionally, the ESMA Guidelines for liquidty stress testing (ESMA 34-39-882) are covered including the FCA or CBI board letters on effective liquidity management and the CSSF Circular 19/733.

Arkus' Liquidity Risk Reporting

At Arkus, we provide an extensive report that allows to screen for potential liquidity risks stemming from both the asset and the liability side of the monitored portfolio either in current market conditions or under stressed scenarios and at different time horizons.

Asset-level time to liquidation and cost of liquidation are assessed using multiple criteria (e.g. position size, traded volumes, maturity, stale prices, bid-ask spreads etc.) and the entire portfolio is allocated across eight liquidity classes. Our system allows the risk manager to overwrite the assignment of a certain position to a liquidity class based on asset-specific information. This process is followed through with an audit trail.

On the liability side, historical net redemptions patterns and investor concentration are analysed and used in stress testing. Our liquidity indicators contrast the liquidity breakdown of the asset side with the results of the liability analysis at matching time horizons in order to screen for potential liquidity shortfalls. This is done in multiple combinations of current and stressed market conditions of both sides.

Arkus provides a dedicated and detailed liquidity report developed upon a solid and transparent methodology that will enable end-clients to easily contrast the asset and liability side.

Asset Side Liquidity Risk: Time to Liquidation Estimation

The starting point of Arkus' methodology is the assumption that the fund's valuation is accurate and as such the pricing of all securities includes an appropriate liquidity risk premium.

All assets that are not cash are considered to have some degree of illiquidity. Even the most highly traded assets will require some time to liquidate into cash. With this in mind, the purpose of the liquidity risk methodology is to allocate all assets to one of the following eight liquidity categories, either via direct estimation of the time to liquidation or indirectly through the assignment of an illiquidity score:

Liquidity Class	Time to Liquidation	Illiquidity Score
8	Immediate (cash)	
7	1 day or less	≤ 15%
6	2 - 7 days	≤ 30%
5	8 - 30 days	≤ 45%
4	31 - 90 days	≤ 60%
3	91-180 days	≤ 75%
2	181-365 days	≤ 90%
1	More than 365 days	> 90%

Asset Side Liquidity Risk: Cost to Liquidation Estimation

Besides time to liquidation, the second aspect to be considered when unwinding a position is the cost that the fund has to bear in order to sell its assets in a timely manner.
Depending on the asset type and/or data availability, the cost of liquidation is estimated via three approaches:

➢ Using bid-ask spreads;
➢ Using a theoretical option-derived cost;
➢ Using a default fixed haircut to the position's market value.

Contact the team to learn about the methodology adopted.

Asset Side Liquidity Risk: Stress Testing

In order to test the portfolio's asset side liquidity under conditions of stress the system applies a shock (i.e. a modification in adverse direction) of the input market and portfolio setup variables that define each asset's time to liquidation and cost of liquidation in current market conditions. A range of modified input variables are referenced across different shock scenarios in order to show a variety of results.

Liability Side Liquidity Risk and Stress Testing

The liability side of the portfolio is analysed across three dimensions:
➢ historical redemption patterns;
➢ Investor basis;
➢ Margin calls.

The statistics calculated for each of the above areas are tested against the asset side in both current and stressed market conditions in order to assess and measure the portfolio's ability to cover equivalent outflows assuming they happen on the analysis date.

Presentation of the Results: RiskRadar

The results of the liquidity assessment can be delivered to end users in the form of physical pdf and excel reports or dynamically accessed and visualized online via our risk monitoring platform, RiskRadar.

RiskRadar provides users an interactive and detailed breakdown of the liquidity risk analysis at position level. The reports created are in compliance with regulatory and/or customer-specific requirements and are automatically delivered by e-email.
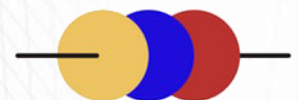
Presentation of Results: Continued....

➢ Asset side liquidity vs hypothetical redemption scenarios in current market conditions

Liquidity Assessment - Current market environment											
		Asset Side		Redemption Scenario 1 (% of Nav) (10 % within 1 Days)		Redemption Scenario 2 (% of Nav) (50 % within 7 Days)		Redemption Scenario 3 (% of Nav) (100 % within 30 Days)			
Liquidity Class	Time to Liquidation	% of NAV	Liquidation Cost	Asset liquidation	Liquidation Cost [Rebalancing]	Asset liquidation	Liquidation Cost [Rebalancing]	Asset liquidation	Liquidation Cost [Rebalancing]		
8	Immediate (Cash)	19.39%	0.00%	2.25%	0%	9.28%	0%	18.45%	0%		
7	1 day or less	68.40%	0.07%	7.92%	0.01%	32.76%	0.03%	65.08%	0.06%		
6	2 - 7 days	16.72%	0.03%	0.00%	[0%]	8.01%	0.02%	15.90%	0.03%		
5	8 - 30 days	0.70%	0.00%	0.00%	[0%]	0.00%	[0%]	0.66%	0%		
4	31 - 90 days	0.00%	0.00%	0.00%	[0%]	0.00%	[0%]	0.00%	[0%]		
3	91 - 180 days	0.00%	0.00%	0.00%	[0%]	0.00%	[0%]	0.00%	[0%]		
2	181 - 365 days	0.00%	0.00%	0.00%	[0%]	0.00%	[0%]	0.00%	[0%]		
1	365 days or more	-5.20%	0.62%	0.00%	[0.07%]	0.00%	[0.3%]	0.00%	[0.59%]		
Total		100.00%	0.72%	10.17%	0.01% [0.08%]	50.05%	0.05% [0.3%]	100.10%	0.1% [0.59%]		
	RCR			863.37%		208.82%		105.10%			

➢ Cumulative amount of liquidable assets, cost of liquidation and maximum sustainable outflow over time horizons (one chart for each asset-side market condition).

➢ Comparison, at the time to liquidation class level, of the available liquidity vs the required assets liquidation in order to face redemptions (one chart for each asset side market conditions).

Liquidity Profile - Cumulative

Liquidity Profile - Assets vs. Redemption Scenarios
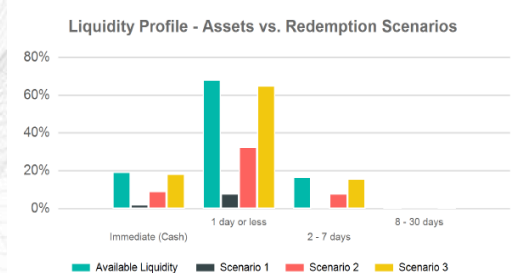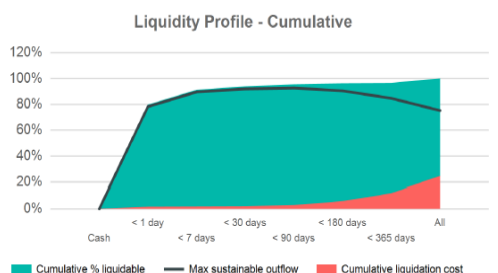
➢ Sample extraction of the asset level liquidity breakdown for non-fixed income instruments.

| Asset Liquidity Breakdown											
			Time to Liquidation (# of days) [Liquidity Class]				Liquidation Cost (bp of NAV)				
Security Name	Type	Weight	Current	AS 1	AS 2	AS 3	Current	AS 1	AS 2	AS 3	
United States Dollar	Cash	16.89%	0	0	0	0	0	0	0	0	
FxForward Buy EUR 66287.45 / Sell USD 78517.22	Forward (Foreign Exchange)	0.00%	[7]	[7]	[7]	[7]	N/A	N/A	N/A	N/A	
Saes Getters-Rnc	Equity	0.16%	0.52	1.99	1.99	1.19	0.1	0.14	0.19	0.38	
CFD - Saes Getters Spa	CFD	0.00%	[7]	[7]	[7]	[7]	0.05	0.08	0.11	0.21	
KL Event Driven UCITS B USD Acc	Fund	1.32%	7	7	7	9	0.49	0.64	0.81	1.17	
Maga Smaller Companies UCITS USD	Fund	2.48%	7	7	7	9	2.15	2.79	3.53	5.08	
iShares MSCI World UCITS ETF USD (Dist)	Exchange Traded Fund	14.50%	5.86	11.58	11.58	3.45	0.41	0.62	0.82	1.65	
MEDIA AND GAMES INVEST PLC	Equity	0.26%	2.68	81.05	81.05	2.6	0.29	0.43	0.58	1.16	
Lyxor Russell 1000 Value UCITS ETF Acc	Exchange Traded Fund	1.55%	12.72	35.93	48.93	76.74	0.29	0.44	0.59	1.18	
Carrier Global Corporation Reg	Equity	0.05%	0	9.34	9.34	0	0	0	0	0.01	
Philip Morris International Inc.	Equity	0.24%	0	0	0	0	0	0	0.01	0.01	
S&P500 EMINI Sep20	Future	-4.01%	[7]	[7]	[7]	[7]	40.68	69.88	93.17	186.34	

Presentation of Results: Continued….

➢ Historical redemption scenarios vs asset side in current and stressed market conditions

Liability Side - Historical Redemption Scenarios						
Horizon	**Redemption Level**		**RCR**			
			Current	**AS 1**	**AS 2**	**AS 3**
Daily	Average	0.70%	12,474.95%	11,046.37%	10,750.87%	10,751.68%
	Hist. Worst	21.07%	413.88%	366.49%	356.68%	356.71%
	99th Perc.	6.64%	1,313.50%	1,163.08%	1,131.97%	1,132.05%
Weekly	Average	3.15%	2,764.44%	2,763.67%	2,654.43%	2,588.59%
	Hist. Worst	26.01%	335.19%	335.10%	321.85%	313.87%
	99th Perc.	25.52%	341.65%	341.55%	328.05%	319.91%
Monthly	Average	11.53%	867.99%	756.36%	756.57%	726.51%
	Hist. Worst	33.28%	300.62%	261.96%	262.04%	251.63%
	99th Perc.	32.50%	307.81%	268.23%	268.30%	257.64%

➢ Investor structure by reported investor type and country

➢ Investor weights compared with the highly liquid assets amounts under each asset-side market condition:
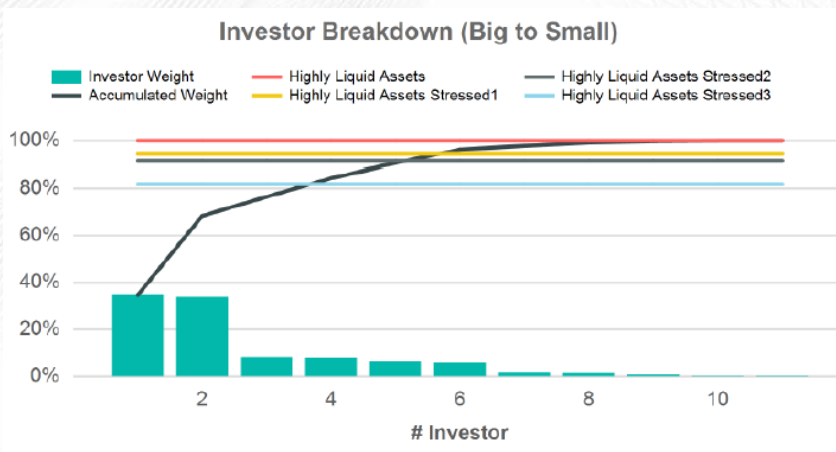
Arkus Financial Services

Since 2003 we have made it our goal to provide asset managers across Europe with flexible, independent and cost-effective investment risk management solutions. We have developed unique risk monitoring and data management skills that enable us to create efficient, high-quality investment risk management reports for a range of investment vehicles and fund structures.

Risk as a Service

Our risk service offering is NOT based on the traditional model of purchased software. Our clients don't have to invest in technology, hire additional staff or manage the strenuous data management process. Arkus integrates all these moving parts into one service offering, allowing our clients to focus on their core business.

Our dedication to quality and service has enabled us to support investment risk functions for major financial institutions across Europe.

Independent and Flexible Risk Management

During uncertain times, it is particularly important for investment managers to have a high quality, efficient, and cost-effective independent risk management function. We specialise in independent risk management, which means that we have a deep and up to date understanding of the regulatory pressures, demands, and restrictions.

Member of the Profidata Group

As of January 1st, 2020, Profidata AG acquired the majority share of Arkus Financial Services S.A. Profidata Group is a Swiss provider of back-to-front investment and wealth management software solutions and services for the financial industry, headquartered in Zurich with subsidiaries and representative offices in Frankfurt am Main, Saarbrucken, Luxembourg, London and Singapore.

Frequently asked Questions

Q. How is liquidity assessed for fixed income securities?

Due to the fact that most fixed income securities are traded OTC, causing obvious limitations on accessing transactional market data, Arkus has adopted a qualitative scoring system approach that aims at capturing various asset characteristics that are commonly accepted to impact liquidty – such as, Maturity, Credit Rating, Issue size ownership, market classification, currency. Each characteristics is divided into sub-categories that have pre-defined illiquidity scores that are subsequently aggregated in order to obtain a total (asset level) illiquidity score which finally translates into an estimation of the time to liquidation class for the security evaluated.

Q. Can the end-client alter the time to liquidation to his/her choosing?

Flexibility is a key benefit we provide to our clients: for certain asset types and in special circumstances the risk manager may choose to reassign the time to liquidation classification. This can be done via RiskRadar (www.riskradar.com) .

Q. What range of derivatives does Arkus cover?

Arkus' liquidity reporting approaches derivative instruments by distinguishing between contractual maturity assets and non-contractual maturity assets. The focus is on the capacity of the fund to close its existing open positions and transform them into cash rather than entering hedging or offsetting transactions. *Contact the team for more information.*

Q. How would you best approach a fund investing into other funds when assessing liquidty?

Arkus offers the possibility to apply a 'look-through' approach in case the monitored portfolio is invested in other funds for which underlying holdings information is available. In short, each relevant investment fund is assigned to a time to liquidation class based on the weighted average time to liquidation of the underlying securities. *Contact the team for more information.*

Q. How do you stress test the portfolios liquidity risk from the asset side?

In order to test the portfolios asset side liquidty under conditions of stress the system applies a shock (i.e. a modification in adverse direction) of the input market and portfolio setup variables that define each asset's time to liquidation and cost of liquidation in current market conditions. A range of modified input variables are referenced across different shock scenarios in order to show a variety of results.

Q. What approach does Arkus use when estimating the cost of liquidation?

Depending on the asset type and/or data availability, the cost of liquidation is estimated via three approaches:

- Using bid-ask spreads;
- Using a theoretical option-derived cost;
- Using a default fixed haircut to the positions market value.

Contact the member of the team for a detailed explanation.