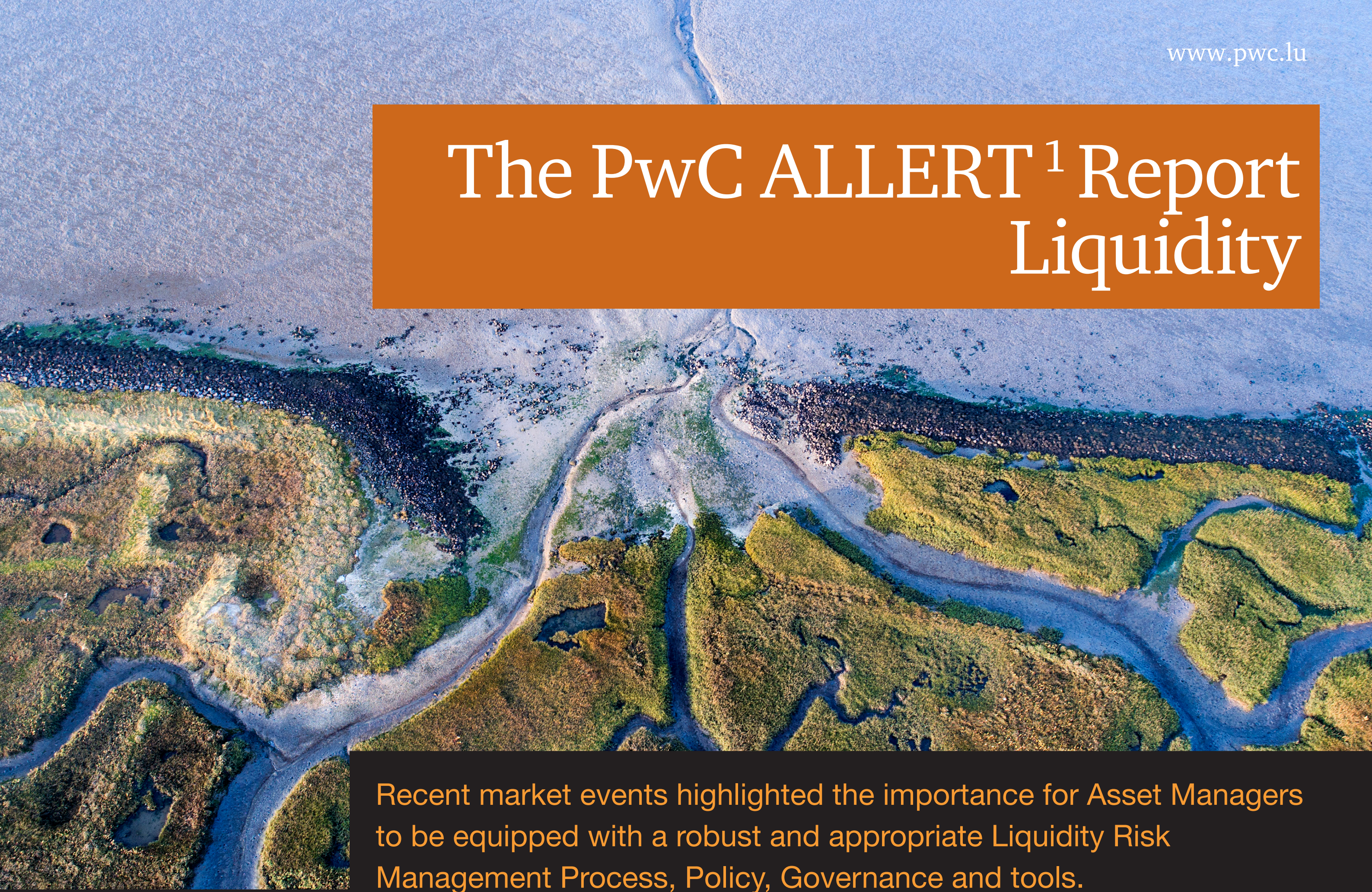

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The PwC ALLERT[1] Report Liquidity

Recent market events highlighted the importance for Asset Managers to be equipped with a robust and appropriate Liquidity Risk Management Process, Policy, Governance and tools.

EU Version

Increased scrutiny from Regulators

All over the world, Liquidity Risk is very high on Regulators' agenda: SEC, FCA, MSA, SFC just to name a few have or are currently issuing stringent requirements on liquidity risk management.

In Europe, Liquidity Risk management was already a requirement in both UCITS IV (2009) and AIFM Directive (2011), but ESMA has published in September 2019 Guidelines on Liquidity Stress testing with 1 year of implementation period (i.e. entry into force September 2020).

Only two months later, CSSF issued the Circular 19/733 which implements in Luxembourg with immediate effect IOSCO recommendations and good practices on liquidity risk management for UCIs.

Management Companies should not waste time and must build an appropriate liquidity risk management process and stress testing program in order to demonstrate suitability between asset liquidity and redemption terms offered to investors.

How liquidity impacts investment

Asset side

Also called market/product Liquidity Risk, the asset liquidity risk arises when transactions cannot be conducted at quoted market prices due to the size of the required trade relative to normal trading lots.

Liability side

The liability liquidity risk arises when the fund cannot meet redemption payments or is able to do so only with such an investment deviation that it could originate claims from the investors.

pwc

1. Asset and Liability Liquidity Expected Ratio and Trend

How to approach liquidity risk in the investment fund industry?

How to monitor and manage the portfolio liquidity risk?

Asset side

The common liquidity indicators used to assess the liquidity of the securities (Average traded volume, bid-ask spread, LVaR, etc.) suffer from different drawbacks.

Therefore, instead of relying on single indicators, PwC has extended the scope of liquidity indicators and selected sound liquidity indicators:

- Average traded volume/% of shares held
- Stale prices
- Credit ratings – LOT
- Number of market/Number of pricing providers
- Bid-ask spread
- Stressed bid-ask spread
- Kyle's Lambda

Then, in order to adequately weight them, and create a valid benchmark, we have selected a broad range of fund portfolios (more than 80) and computed the value of all these indicators for each portfolio line (more than 7,000 securities and 70,000 lines of financial data).

Finally, weights of the different indicators as well as the global liquidity scale have been scientifically defined by using the Principal Component Analysis econometric method.

Liability side

Forecasting the investors' behaviour is key in liquidity risk management for investment funds but remains a challenging task considering the low level of transparency of investors.

Bearing that in mind, there are still ways of defining potential trends in subscriptions and redemptions.

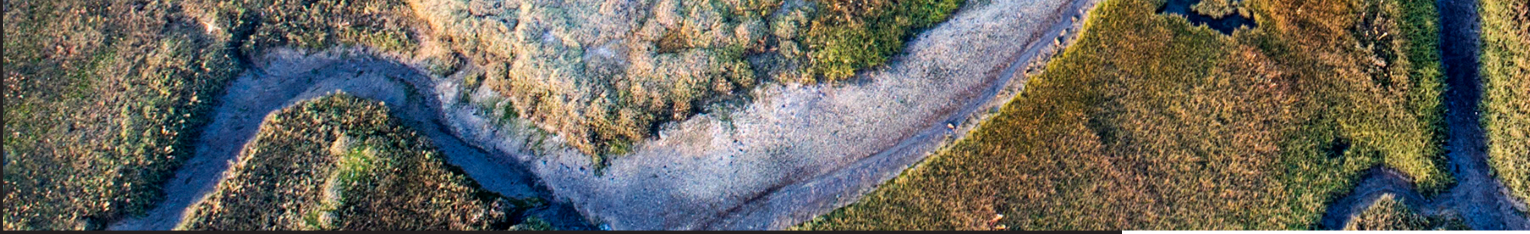
The past evolution of the number of shares can be used as an indicator of what could happen in the future. But, in order to remain reliable, these analyses need to be based on strong and relevant statistical techniques.

The method selected is therefore based on a structured technical approach relying on Time Series Analysis.

Based on the historical trends of subscriptions and redemptions, we define the function that best fits the past distributions to generate reliable forecasts.

The issue that has to be addressed is not limited to the future trend forecast but should be extended to potential stress levels of redemptions. Therefore, by modelling the past events of subscription-redemptions, we determine different stress scenarios using different intervals of confidence.

Finally, we link these stressed trends to the amount of cash and other liquidity facilities, with certainty available to the fund, to determine how redemptions would affect the fund's liquidity in stressed circumstances.



PwC ALLERT Report Liquidity

The new regulations regarding liquidity risk pose considerable challenges to the fund industry in various aspects.

Therefore, in order to support clients in this new challenge, at PwC, we have developed a new approach summarised in a comprehensive report called:
The PwC Allert report.

ALLERT stands for Asset and Liability Liquidity Expected Ratio and Trend as this report provides you with information on the liquidity of the portfolio as well as expectations in terms of subscriptions and redemption both in terms of rating and future trends.

In order to ensure the efficiency of the process, we will provide you with this report duly filled, meaning that your risk team will not spend time on the production of the report but capitalise on their expert judgment to complete, challenge and interpret the results.

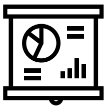
Also, as we want this report to be tailored to your needs, we follow a modular approach: you only pay for the module(s) you need.

Deliverables

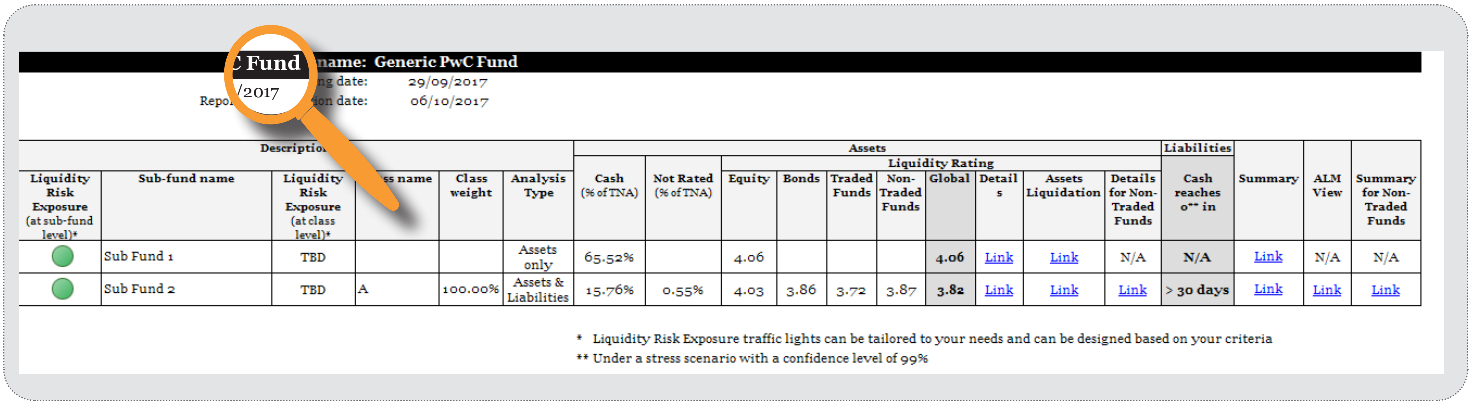
You will be provided at a defined frequency with the ALLERT reports and will receive one Excel workbook per fund (and a complementary PDF on simple request) that discloses:

1. A synoptic dashboard;
2. The liquidity analysis;
3. The portfolio liquidity rating;
4. The assets liquidation;
5. The ALM view.

1 Dashboard



The dashboard provides a high level reporting of the liquidity risk faced by every sub-fund and their related share classes.



C Fund name: Generic PwC Fund
...ng date: 29/09/2017
Repo... /2017 ...ion date: 06/10/2017

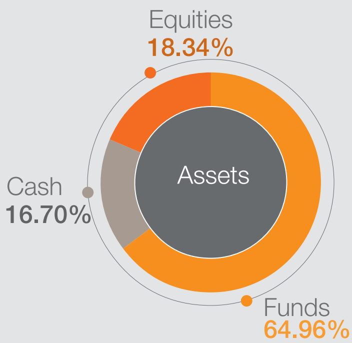
Description						Assets										Liabilities			
								Liquidity Rating											
Liquidity Risk Exposure (at sub-fund level)*	Sub-fund name	Liquidity Risk Exposure (at class level)*	ss name	Class weight	Analysis Type	Cash (% of TNA)	Not Rated (% of TNA)	Equity	Bonds	Traded Funds	Non-Traded Funds	Global	Details	Assets Liquidation	Details for Non-Traded Funds	Cash reaches 0** in	Summary	ALM View	Summary for Non-Traded Funds
	Sub Fund 1	TBD			Assets only	65.52%		4.06				4.06	Link	Link	N/A	N/A	Link	N/A	N/A
	Sub Fund 2	TBD	A	100.00%	Assets & Liabilities	15.76%	0.55%	4.03	3.86	3.72	3.87	3.82	Link	Link	Link	> 30 days	Link	Link	Link

* Liquidity Risk Exposure traffic lights can be tailored to your needs and can be designed based on your criteria
** Under a stress scenario with a confidence level of 99%

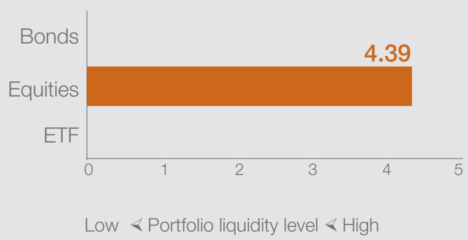
2 Liquidity Analysis

This example shows the aggregate liquidity report for the sub-fund (Assets and Liabilities). In addition, it is also possible to generate liability analyses for each share class independently.

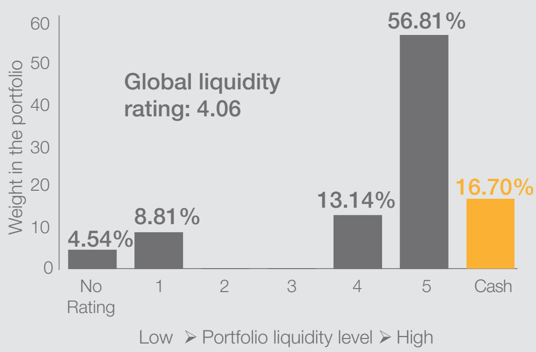
Asset side



Liquidity rating

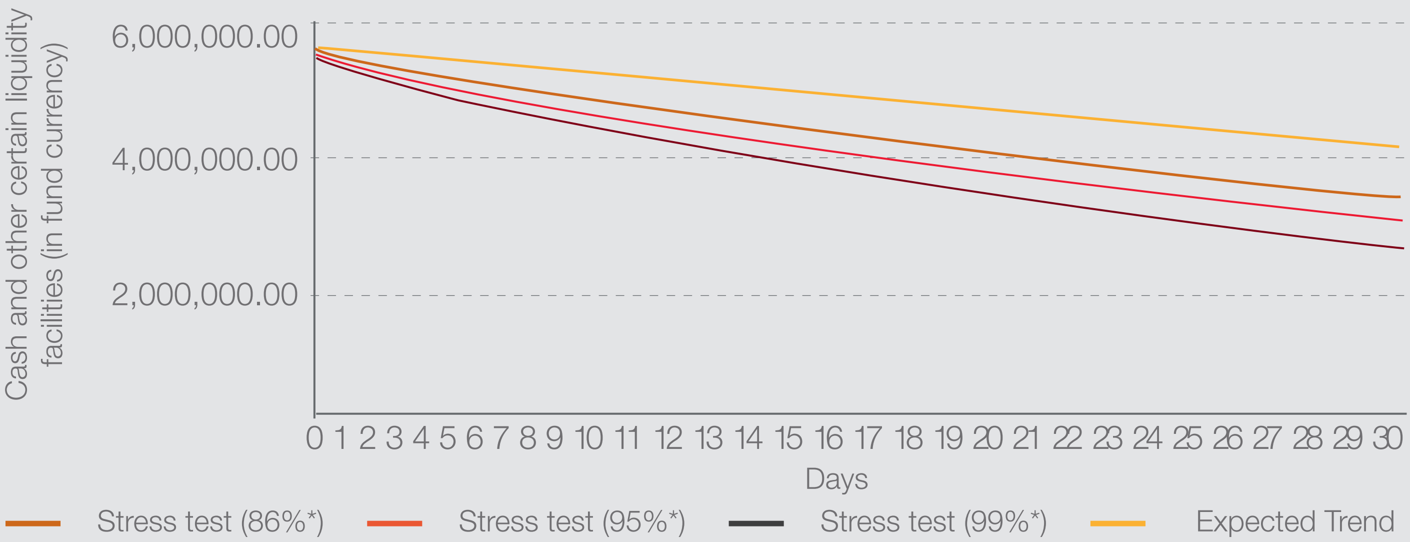


Assets liquidity buckets analysis



Liability side

Redemption scenario analysis



* Level of confidence

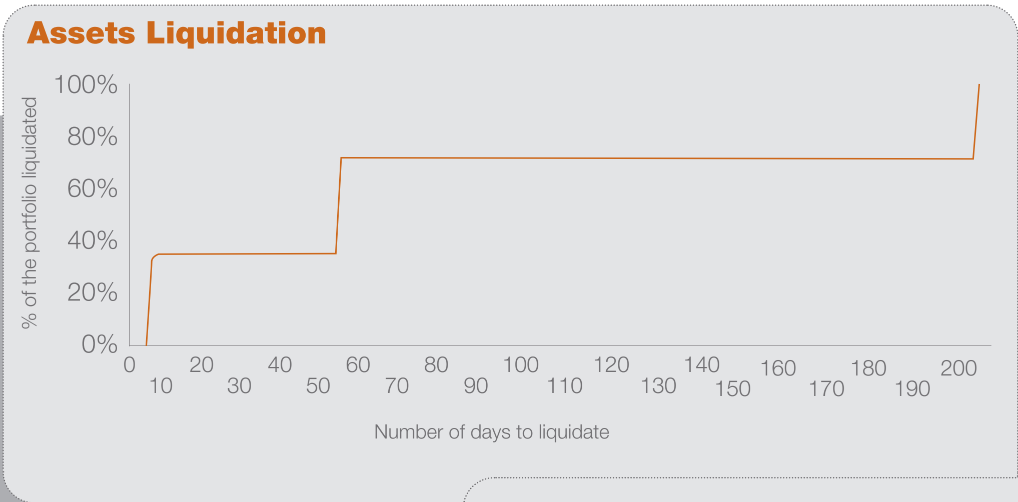
3 Portfolio Liquidity Rating

This example shows a list of the individual securities contained in the portfolio, their liquidity ratings and the details of what composes the liquidity ratings.

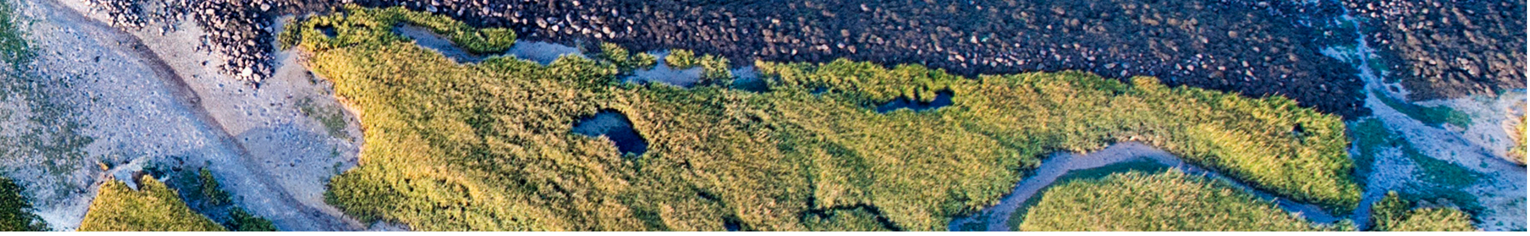
ISIN Code	Asset Name	Market Value	Weight in Portfolio	Type	Liquidity Rating	ABA Risk Factor	SBA Risk Factor	NPC Risk Factor	NDL Risk Factor	KYL Risk Factor
US912828UF54	US TREASURY N/B 12/19 1.125	4,980,243	3.06%	Bonds	4	(1.27)	(0.38)	(1.71)	(0.58)	
IT0005047029	ITALY 0% 14-14.09.15 BOT	4,346,005	2.67%	Bonds	5	(1.14)	(0.85)	(0.60)	(0.16)	(0.18)
PL0000010667	POLAND GOVERNMENT BOND BONDS	4,323,807	2.65%	Bonds	5	(0.69)	(0.44)	(1.01)	(0.13)	(0.18)
DE000NRW0E2	LAND NORDRHEIN WESTFALEN SR	4,047,829	2.49%	Bonds	3	(1.02)	(0.44)	(0.12)	0.29	
ES00000122D	SPAIN (KINGDOM OF)	3,782,994	2.32%	Bonds	4	(0.73)	0.47	(0.88)	(0.18)	(0.18)
SE0003784461	SWEDISH GOVERNMENT BONDS 06/22	3,612,148	2.22%	Bonds	4	(1.04)	(0.47)	(1.68)	(0.55)	
NL0011220108	NETHERLANDS 0.25% 15-15.07.25	3,071,608	1.89%	Bonds	4	(0.69)	0.73	(0.84)	(0.18)	(0.18)
XS0171578502	DEVELOPMENT BK OF JAPAN GOVT	2,880,378	1.77%	Bonds	2	(0.67)	(0.32)	(0.12)	0.34	
MXBIGO000IG	MEXICAN CETES BILLS 09/15	2,472,259	1.52%	Bonds	3	(1.28)			0.06	
US912828HH6	US TREASURY N/B 11/17 4.25	2,427,705	1.49%	Bonds	4	(1.07)	(0.06)	(1.76)	(0.60)	
XS1242410733	DEXIA CREDIT LOCAL GOVT LIQUID	2,337,597	1.44%	Bonds	2	(1.21)	(0.62)	0.88	0.28	
ES0L01605135	SPAIN LETRAS DEL TESORO BILLS	2,336,893	1.43%	Bonds	5	(1.12)	(0.83)	0.51	(0.16)	(0.18)
GB00BDNNY04	UK TREASURY BILL GBP BILLS 08/15	2,286,712	1.40%	Bonds	3	(1.41)	(0.66)	0.88	(0.53)	
XS0951560969	DEXIA CREDIT LOCAL GOVT LIQUID	2,249,485	1.38%	Bonds	4	(1.32)	(0.60)	(0.91)	(0.37)	
DE000NWB10L	NRW.BANK LOCAL GOVT G 07/20	2,133,524	1.31%	Bonds	4	(0.86)	(0.48)	(1.11)	0.20	
JP1201521F37	JAPAN (20 YEAR ISSUE) SR	2,129,869	1.31%	Bonds	4	(1.21)	(0.52)	(0.91)	(0.60)	
GB00B4YRFP4	UK TSY 3 3/4 2019 BONDS REGS	2,129,312	1.31%	Bonds	5	(1.08)	(0.76)	(0.60)	(0.19)	(0.18)
US912828NT32	US TREASURY N/B 08/20 2.625	2,080,861	1.28%	Bonds	4	(1.16)	(0.11)	(1.76)	(0.61)	

4 Assets Liquidation

This graph shows the number of days needed to liquidate a certain percent of the portfolio. This is built using the liquidity ratings of the individual assets of the portfolio.

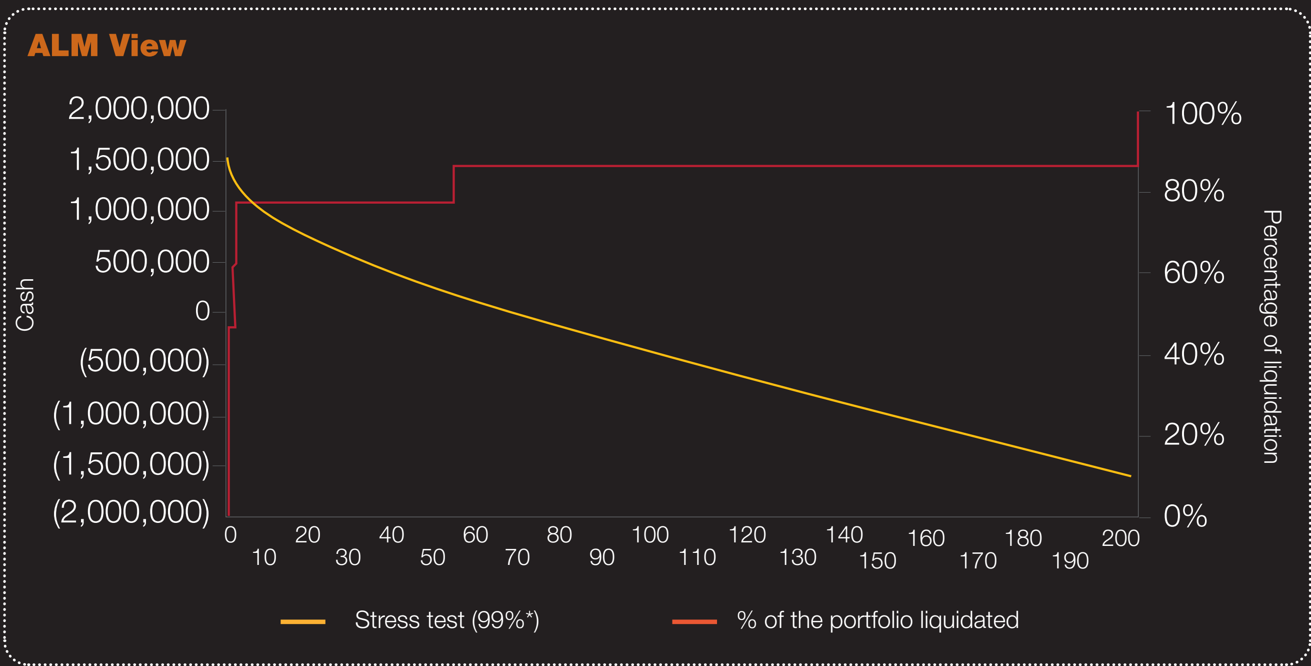


AIFMD Buckets						
1-2 days	2-7 days	7-30 days	30-90 days	90-180 days	180-365 days	365-∞ days
39.11%	44.35%	0.00%	15.89%	0.00%	0.65%	0.00%



5 ALM View

The Asset and Liability Management (ALM) graphical view provides with an easy-to-understand and quick status of the coverage of the potential redemptions (I.e. cash outflows) by the estimated liquidation of the assets (I.e. cash inflows). It enables clients to quickly identify any potential mismatch between the redemption profile of the fund and its portfolio liquidity level.



How we can help you

Our specialist team members have gained a strong expertise as consultants and through their experience within the financial industry. As a result, they are able to quickly understand your concerns. Our solution is proportionate to the scale, diversity and complexity of your activities, hence it is really tailored and sound.

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