

Firefighters' Retirement System of Louisiana

Liquidity and Liability Analysis

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 **Segal Marco Advisors**

Overview

- The plan has a higher than average funding ratio of 87% with a lower than average target rate of 6.90% (vs. Public averages of 75% and 7.26% respectively).
- The plan has slightly lower than average demographics, with 1.2 actives per inactive (vs. 1.3 average).
- The annual cash flows as a percent of total assets (+0.3%) have been better than average (-2.9%).
- The fund has some diversity from a liquidity standpoint. 5% of assets are in less liquid tiers (19% once all capital is called).
- ***Based on the funding ratio, demographics, and cash flows, the fund has some ability to add dollars to the less liquid asset classes to try and capture additional returns in the form of an illiquidity premium.***

Liability Overview

Overview

There are several factors that are good indicators of the health of a pension plan which should be considered when customizing a portfolio. The primary drivers are the funding status, liquidity, and the underlying demographics.

Both the actuarial value and the market value funding ratios are measures of the Fund's financial status.

Summary

This information is from the actuarial valuation report from G.S. Curran & Company.

Summary

Valuation date	June 30, 2021
Investment Return Assumption	6.90%
Market Value Funding Ratio	86.8%
Actuarial Value Funding Ratio	78.8%
Ratio of actives to inactive and retirees	1.19

Funded Status

	Current	Funding Ratio	
■ Market value of assets	\$2,326,798,869	86.8%	\$2,326,798,869
■ Actuarial value of assets	\$2,111,737,202	78.8%	\$2,111,737,202
■ Liability	\$2,681,184,069	N/A	\$2,681,184,069
Public Average		75%	

As investment gains and losses are gradually taken into account, the actuarial value of assets trends towards the market value of assets.

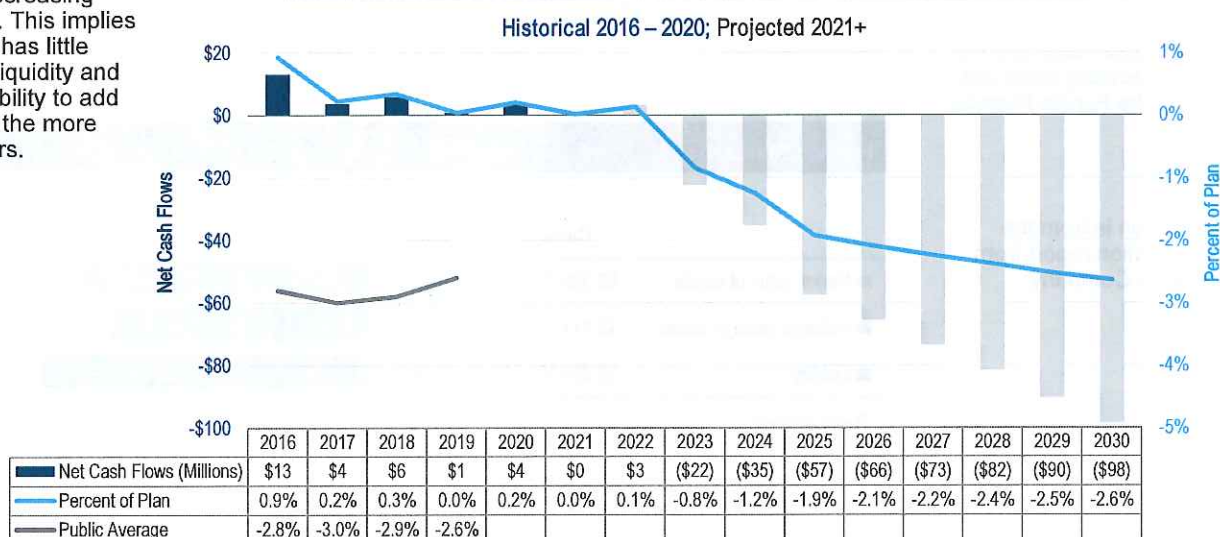
Cash Flow Analysis

Summary

The net cash flows have been adding about 0.3% per year from the Fund. The net cash flows are projected to be about -1.6% (decreasing annually). This implies the Fund has little need for liquidity and has the ability to add assets to the more illiquid tiers.

Historical Cash Flow Analysis

	2016	2017	2018	2019	2020
Annual Net Impact to Trust Inflow/ (Outflow)	\$13,000,000	\$3,600,000	\$5,800,000	\$700,000	\$3,700,000
Total Assets (BOY)	\$1,399,900,000	\$1,593,700,000	\$1,704,000,000	\$1,778,900,000	\$1,837,700,000
Percent of Total Assets	0.9%	0.2%	0.3%	0.0%	0.2%



The higher the percentage of dollars being subtracted from the plan, the less flexibility the plan has for allocating dollars to less liquid assets.

Liquidity Matrix

<i>As of August 31, 2021</i>	Tier 1 (current)*	Tier 2	Tier 3	Tier 4	Tier 5 (current)*	Tier 6 (current)*	Tier 5/6 (future)*
<i>Investment Availability</i>	<i>Daily</i>	<i>Monthly</i>	<i>Qtr to 1 yr</i>	<i>1 to 3 years</i>	<i>3 to 7 years</i>	<i>7+ years</i>	
Equity	\$1,304,099,557						
Fixed Income	\$585,754,278						
Real Estate – Open End			\$118,717,785				
Real Estate – Closed End						\$5,599,719	\$5,599,719
Hedge Funds			\$0				
Opportunistic				\$0	\$0		
Private Equity						\$100,203,033	\$345,331,681
Infrastructure						\$0	\$50,000,000
Private Credit					\$0		\$37,500,000
MACS/GTAA	\$168,076,690						
Cash	\$15,805,213						
Total	\$2,073,735,738	\$0	\$118,717,785	\$0	\$0	\$105,802,752	\$438,431,400
Percent	90%	0%	5%	0%	0%	5%	19%

Most Liquid

Least Liquid

* Assumes future capital calls for Tiers 5 and 6 are funded from Tier 1; Tier 1 would change from 90% to 76% of portfolio once all capital is called.

Liquidity Tier Analysis

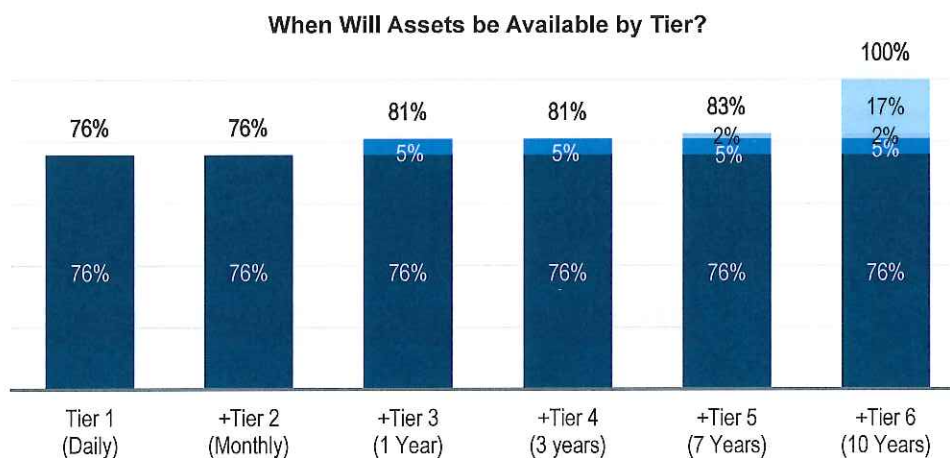
Overview

The asset classes have been separated into tiers based on their respective liquidity, or how easily they can be redeemed for cash. Tier 1 is the most liquid (daily liquidity) while Tier 6 is the least liquid (dollars tied up for 7 or more years).

Summary

The chart is a cumulative summary of the liquidity matrix from the prior slide. It shows a snapshot of the current portfolio (8/31/21 assets) allocation, which has low exposure to most of the illiquid tiers. It shows when the assets will be available (blue bars) over the various time periods.

Tier Analysis – Includes Current Committed Capital							
Allocation of Assets by Tier							
	Tier 1*	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6*	Total
Terms	Daily	Monthly	Qtrly to 1 yr	1 to 3 years	3 to 7 years	7+ years	
Current Liquidity	\$1,741,107,090	\$0	\$118,717,785	\$0	\$37,500,000	\$400,931,400	\$2,298,256,275
Allocated %	75.8%	0.0%	5.2%	0.0%	1.6%	17.4%	
Aggregate Available %	75.8%	75.8%	80.9%	80.9%	82.6%	100.0%	



Generally, the more illiquid an asset class is (i.e., the longer tie-up period), the higher the expected annual return.

* Tiers are adjusted for future capital calls. Tier 6 assets are funded from Tier 1.

Liquidity

Cash Flow by Tier

Overview

The shaded area below illustrates how much of the current assets may be needed by tier to pay benefits, rebalance the portfolio or for private asset capital calls.

More assets will be needed on a cumulative basis for the higher tiers, which coincides with a longer lock-up timeframe.

Summary

In addition to showing when the assets would be available (blue bars), the chart shows how much of the assets will be needed (grey shaded area) over the different time periods.

For Example: Over the next 3 years, the Fund will have access to 81% of the 8/31/21 assets, and is projected to need 37% of the 8/31/21 assets to pay benefits (18%), to possibly rebalance the portfolio (5%), and for capital calls (14%).

Potential Cash Needs

Benefit Payment

The primary purpose of the trust assets is to pay pension benefits to members. We used the projected benefit payments over the next ten years.

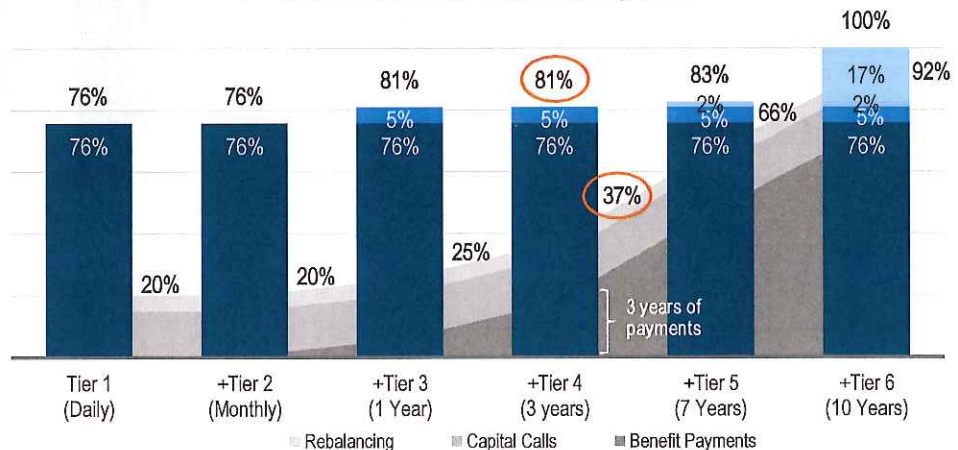
Rebalancing

Over time as markets fluctuate, it becomes necessary to rebalance the portfolio. We have assumed a 5% need at any point in time for rebalancing purpose.

Capital Calls

We have calculated future capital calls based on the current private asset commitments and takedowns.

When Will Assets be Needed by Tier?

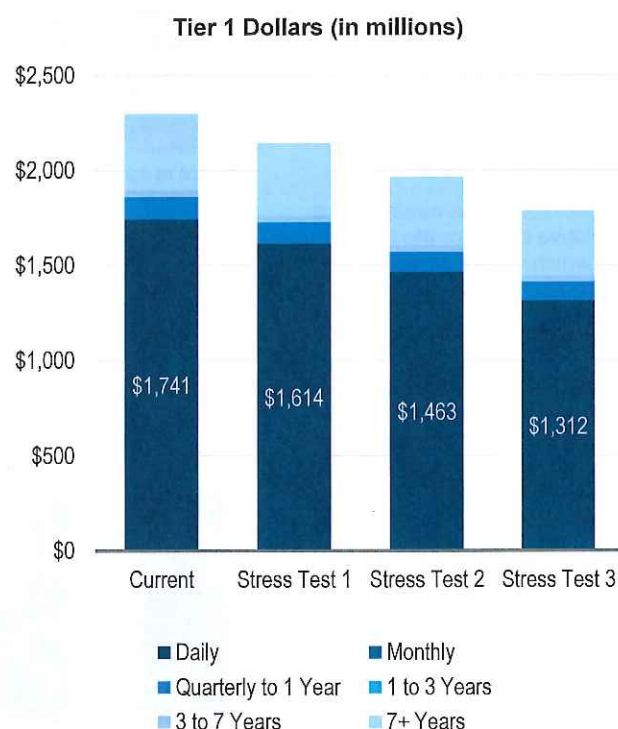


Assumes cumulative cash flow by Tier

Stress Test Considerations

Stress Test

	Liabilities \$2,681,184,069	Average Annual Benefit Payments ¹ \$167,710,594	
	Assets	% of Liabilities	Years of Benefit Payments
Current ²			
	\$2,298,256,275	86%	13.7
Scenario 1			
Assumes 10% decrease in equities, 0% decrease in fixed income, 5% decrease in alternatives ³ .			
	\$2,143,138,910	80%	12.8
Scenario 2			
Assumes 20% decrease in equities, 5% decrease in fixed income, 10% decrease in alternatives ³ .			
	\$1,964,596,143	73%	11.7
Scenario 3			
Assumes 30% decrease in equities, 10% decrease in fixed income, 15% decrease in alternatives ³ .			
	\$1,786,053,377	67%	10.6



NOTE: Assumes no additional contributions or investment returns; based on current assets only.

¹ Based on projected average benefit payments for the next ten years.

² Current assets are the market value as of August 31, 2021.

³ Alternative asset classes include Real Estate, Hedge Funds, Private Equity, etc.

Liquidity Tier Analysis

Stress Test (Scenario 3)

Overview

Under Stress Test 3, we have assumed a 30% decrease in equities, 10% decrease in fixed income and 15% decrease in alternatives. As the assets decrease, the benefit payments become a higher percent of total assets when compared to the non-stress tested assets.

Summary

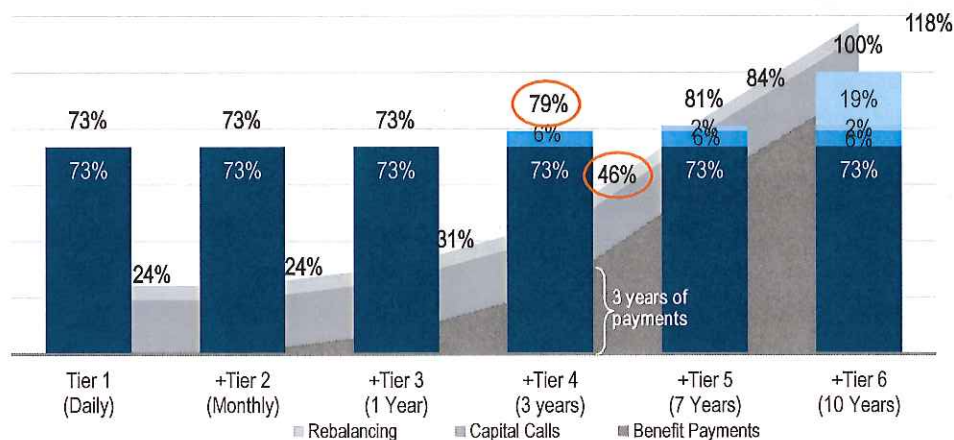
For Example: Over the next 3 years, the Fund will have access to 79% of the 8/31/21 assets, and is projected to need 46% of the 8/31/21 assets to pay benefits (23%), to possibly rebalance the portfolio (5%), and for capital calls (18%).

Tier Analysis

Allocation of Assets by Tier

	Tier 1	Tier 2	Tier 3*	Tier 4*	Tier 5	Tier 6	Total
Terms	Daily	Monthly	Qtrly to 1 yr	1 to 3 years	3 to 7 years	7+ years	
Current Liquidity	\$1,312,476,569	\$0	\$0	\$100,910,117	\$31,875,000	\$340,791,690	\$1,786,053,377
Allocated %	73.5%	0.0%	0.0%	5.6%	1.8%	19.1%	
Aggregate Available %	73.5%	73.5%	73.5%	79.1%	80.9%	100.0%	

Stress Test 3



* We have assumed Tier 3 assets would be further locked up to Tier 4 in the event of significant market stress.

Illiquids as a Percent of Total

This chart shows how the illiquid portion (Tiers 4, 5, and 6) of the portfolio increases as a percent of the total portfolio (see 'Illiquid Portfolio Weight' below). This assumes that all assets grow at 0% and at 6.9% (under the two scenarios), and that net cash flows are taken from Tier 1 assets. Since cash flows are taken from Tier 1, the illiquid portion of the portfolio grows as a percent of the total portfolio (due to the relatively large cash outflows).

\$ in Millions								
	2021	2022	2023	2024	2025	2026	2027	2028
Net Cash Flow	\$0.4	\$3.3	(\$22.4)	(\$35.2)	(\$57.4)	(\$65.5)	(\$73.4)	(\$81.5)
Assumed Rate of Return	0%							
Market Value of Assets	\$2,326.8	\$2,327.15	\$2,330.47	\$2,308.10	\$2,272.90	\$2,215.50	\$2,149.99	\$2,076.55
<i>Illiquid Assets</i>	<i>\$107.1</i>	<i>\$107.1</i>	<i>\$107.1</i>	<i>\$107.1</i>	<i>\$107.1</i>	<i>\$107.1</i>	<i>\$107.1</i>	<i>\$107.1</i>
Net Cash Flow / Market Value	0.0%	0.1%	-1.0%	-1.5%	-2.5%	-3.0%	-3.4%	-3.9%
<i>Illiquid Portfolio Weight</i>	<i>4.6%</i>	<i>4.6%</i>	<i>4.6%</i>	<i>4.6%</i>	<i>4.7%</i>	<i>4.8%</i>	<i>5.0%</i>	<i>5.2%</i>
Assumed Rate of Return	6.9%							
Market Value of Assets	\$2,326.8	\$2,487.71	\$2,662.79	\$2,823.39	\$2,981.79	\$3,128.15	\$3,276.23	\$3,426.31
<i>Illiquid Assets</i>	<i>\$107.1</i>	<i>\$114.5</i>	<i>\$122.4</i>	<i>\$130.9</i>	<i>\$139.9</i>	<i>\$149.5</i>	<i>\$159.9</i>	<i>\$170.9</i>
Net Cash Flow / Market Value	0.0%	0.1%	-0.8%	-1.2%	-1.9%	-2.1%	-2.2%	-2.4%
<i>Illiquid Portfolio Weight</i>	<i>4.6%</i>	<i>4.6%</i>	<i>4.6%</i>	<i>4.6%</i>	<i>4.7%</i>	<i>4.8%</i>	<i>4.9%</i>	<i>5.0%</i>

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