Treasury Analysis and Liquidity Status Report

Prepared for: Finance and Administration Committee - Period Ending June 30, 2019

Public Employees' Retirement Fund (PERF)

The PERF provides retirement benefits to the State of California, schools and other California public agency employees. The PERF benefits are funded by member contributions, employer contributions, and by investment earnings. Changes in investment strategies and asset allocation will impact data reported from period to period.

Liquidity Coverage Ratio Analysis

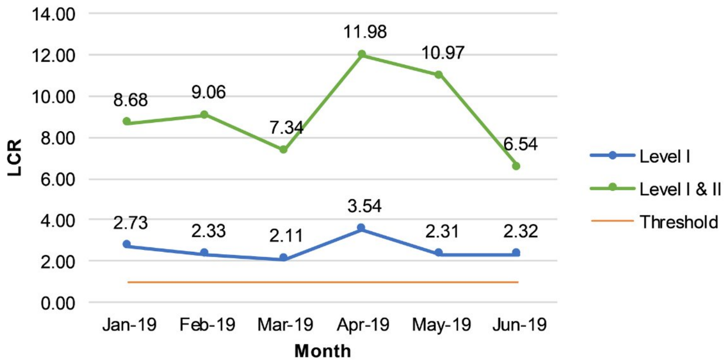
Liquidity Coverage Ratios (LCR) $= \dfrac{\text{cash + assets convertible to cash + incoming cash sources}}{\text{outgoing cash uses + contingent cash uses}}$

Funding Sources and Graph Details

Level I: Cash & cash equivalents (assets maturing < 30-days)
Level II: Cash equivalents maturing > 30-days + borrowed liquidity held in cash
Level III: Sale of public assets
Threshold: Indicates the Fund's ability to cover 100% of monthly obligations.

Normal Environment - 30-Day Liquidity Coverage Ratios

The 30-day LCR included investment and non-investment available cash flows.

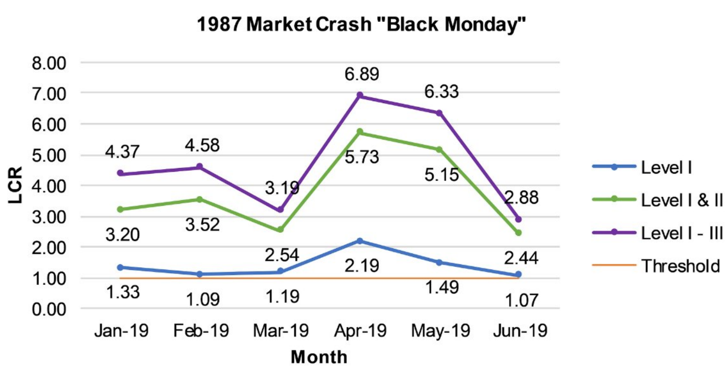


Level I: Level I LCRs exceeded the threshold in January through June. April's Level I LCR increased due to State Employer contributions.

Level I & II: Since Level I LCRs remained above the threshold, it was not necessary to utilize Level II assets in January through June. Fluctuations in Level II assets were due to normal volatility of security lending balances.

Stressed Environment – 30-Day Liquidity Coverage Ratios

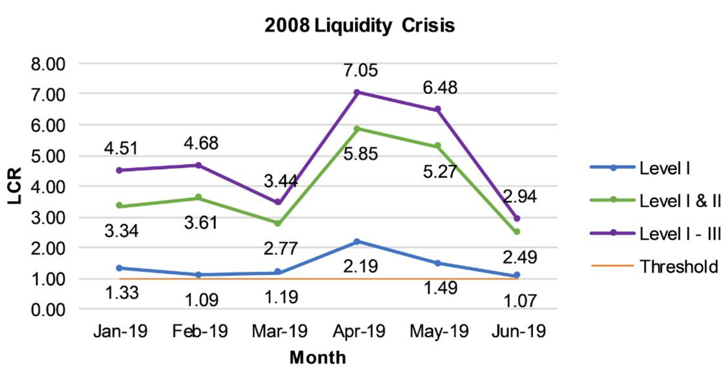
Stressed environment LCR scenarios were calculated assuming starting assets were stressed by the percentages actually experienced over 5 days in the 1987 market crash and 30 days during September 2008. Starting assets were further reduced by a transactional liquidity % equal to the estimated % of the assets that could have been liquidated during the 30-day period. Under the stressed scenarios, asset class sources were reduced to zero.



Level I: Level I LCRs were adequate had a stressed event similar to "Black Monday" occurred.

Level I & II: CalPERS would not have needed to utilize Level II assets.

Level I – III: CalPERS would not have needed to utilize Level III assets.



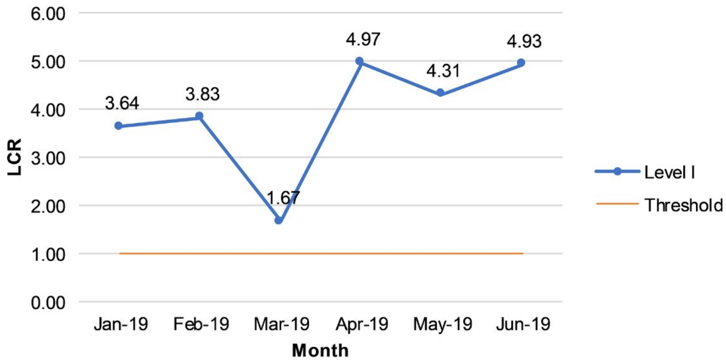
Level I: Level I LCRs were adequate had a stressed event similar to the 2008 Liquidity Crisis occurred.

Level I & II: CalPERS would not have needed to utilize Level II assets.

Level I – III: CalPERS would not have needed to utilize Level III assets.

Crisis Environment - 10-Day Liquidity Coverage Ratios

The 10-day LCR utilized only the available cash balance ten days prior to the payment date. In a crisis environment, CalPERS would not have access to Level III assets. The calculation assumed a five business day market lockdown as experienced on September 11th, 2001.



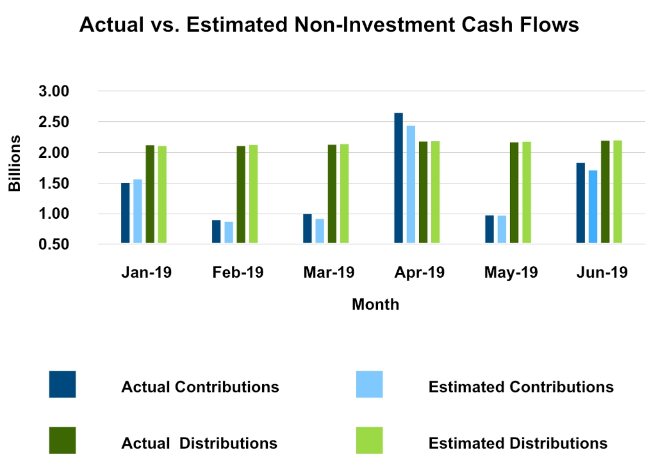
Level I: The PERF had sufficient cash to cover obligations ten days prior to the payment date. This indicated Level I would have been adequate had a crisis event occurred.

Overall PERF Liquidity Health

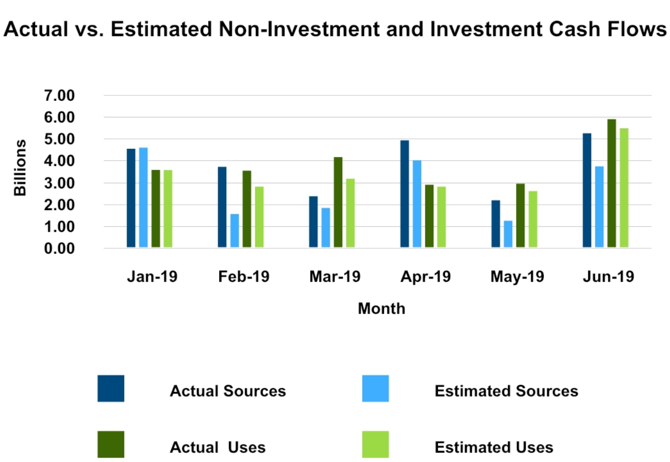
Coverage Ratio Analysis**:**

- CalPERS was able to make payments for benefits, operating expenses and projected investments regardless of market conditions.
- PERF's liquidity remained above the threshold in the normal environment and was adequate in stressed and crisis environments.

PERF Cash Flow Forecasting



January through June's cash flow forecasting accuracy was in the 90th percentile. The increase in April's and June's contributions were due to State employer contributions.



Cash flow forecasting for total fund cash activities (both non-investment and investment) can be volatile. Components that drove forecast volatility included, but were not limited to: private equity activity, real estate and investment expenses. The increase in April's and June's contributions were due to State employer contributions.

Treasury Analysis and Liquidity Status Report

Prepared for: Finance and Administration Committee - Period Ending June 30, 2019

Legislators' Retirement Fund (LRF)

The LRF provides retirement benefits to California Legislators elected to office before November 7, 1990, and to constitutional, legislative, and statutory officers elected or appointed prior to January 1, 2013. The Fund is closed to new participants. The number of LRF members has been declining in the last decade as eligible incumbent Legislators leave office and are replaced by those ineligible to participate in the LRF. Actuarially determined contributions will continue to be made by the State of California to supplement the existing assets until all benefit obligations have been fulfilled. The Fund maintains a cash equivalent reserve equal to two months of member benefit payments and obligations.

Liquidity Coverage Ratio Analysis

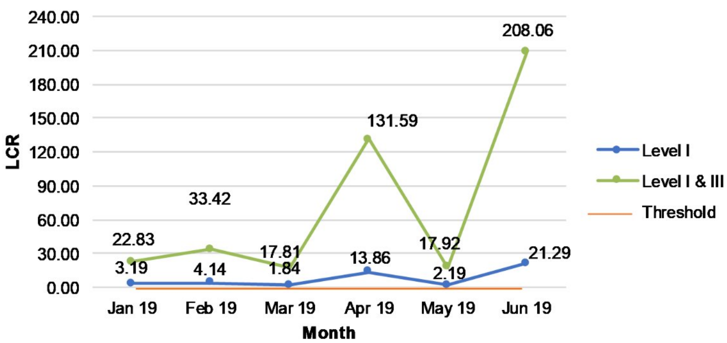
$$\text{Liquidity Coverage Ratios (LCR)} = \frac{\text{cash + assets convertible to cash + incoming cash sources}}{\text{outgoing cash uses + contingent cash uses}}$$

Funding Sources and Graph Details

Level I: Cash & cash equivalents + Reserves
Level III: Sale of public assets
Threshold: Indicates the Fund's ability to cover 100% of monthly obligations.

Normal Environment - 30-Day Liquidity Coverage Ratios

The 30-day LCR included investment and non-investment available cash flows.

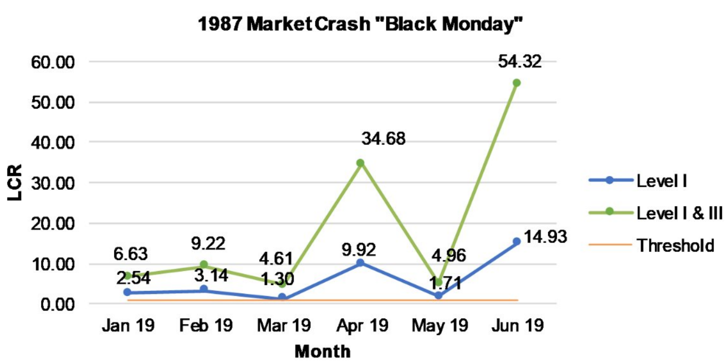


Level I: Level I LCRs remained above the threshold in January through June. April and June's LCRs increased due to the timing of member benefit payments.

Level I & III: Since Level I LCRs remained above the threshold, it was not necessary to utilize Level III assets. April and June's LCRs increased due to the timing of member benefit payments.

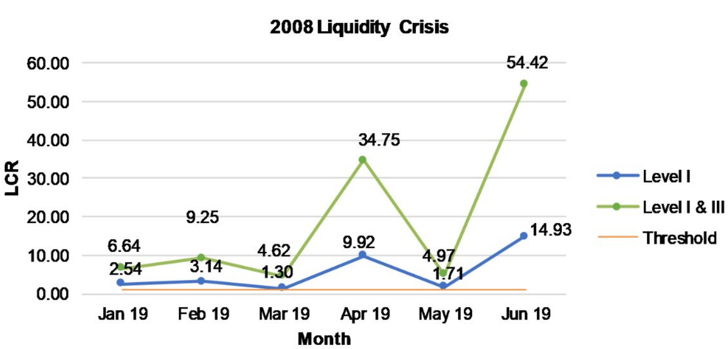
Stressed Environment – 30-Day Liquidity Coverage Ratios

Stressed environment LCR scenarios were calculated assuming starting assets were stressed by the percentages actually experienced over 5 days in the 1987 market crash and 30 days during September 2008. Starting assets were further reduced by a transactional liquidity % equal to the estimated % of the assets that could have been liquidated during the 30-day period. Under the stressed scenarios, asset class sources were reduced to zero.



Level I: Level I assets would have been adequate had a stressed event similar to "Black Monday" occurred. This is a closed fund and relies on the planned sale of assets to pay member benefits. April and June's LCRs increased due to the timing of member benefit payments.

Level I & III: Level I and Level III assets were adequate had a stressed event similar to "Black Monday" occurred. April and June's LCRs increased due to the timing of member benefit payments.

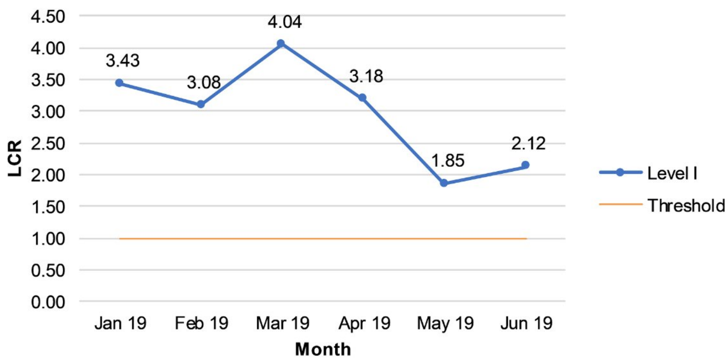


Level I: Level I assets would have been adequate had a stressed event similar to the 2008 Liquidity Crisis occurred. This is a closed fund and relies on the planned sale of assets to pay member benefits. April and June's LCRs increased due to the timing of member benefit payments.

Level I & III: Level I and Level III assets were adequate had a stressed event similar to the 2008 Liquidity Crisis occurred. April and June's LCRs increased due to the timing of member benefit payments.

Crisis Environment - 10-Day Liquidity Coverage Ratios

The 10-day LCR utilized only the available cash balance ten days prior to the payment date. In a crisis environment, CalPERS would not have access to Level III assets. The calculation assumed a five business day market lockdown as experienced on September 11th, 2001.



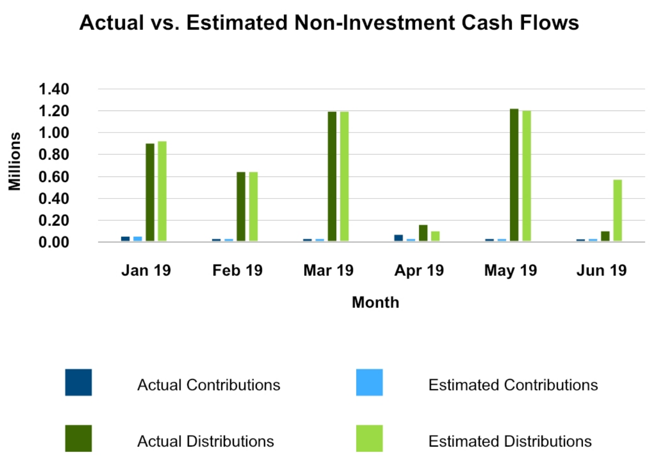
Level I: The LRF had sufficient cash to cover obligations ten days prior to the payment date. Level I assets would have been adequate had a crisis event occurred.

Overall LRF Liquidity Health

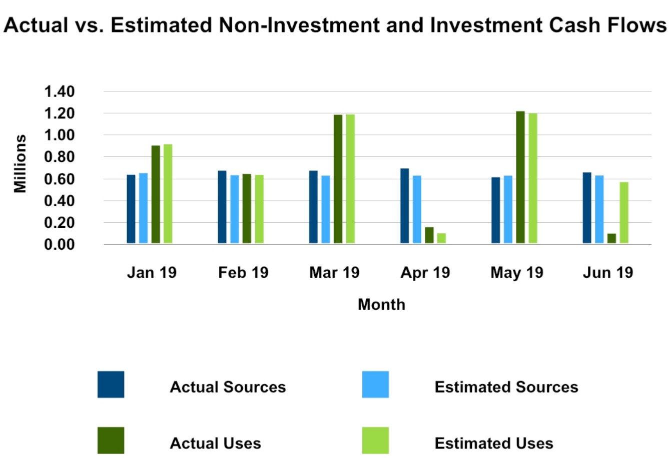
Coverage Ratio Analysis

- LRF was able to make payments for benefits and operating expenses regardless of market conditions.
- LRF's liquidity remained above the threshold regardless of market conditions.

LRF Cash Flow Forecasting



Cash flow forecasting accuracy was in the 90th percentile for January, February, March, and May. Fluctuations for April and June were due to the timing of benefit and tax payments.



Cash flow forecasting accuracy was in the 90th percentile for January, February, March, and May. Fluctuations for April and June were due to the timing of benefit and tax payments.

Treasury Analysis and Liquidity Status Report

Prepared for: Finance and Administration Committee - Period Ending June 30, 2019

Judges' Retirement Fund I (JRF I)

The JRF I provides retirement benefits to California Supreme and Appellate Court Justices and Superior Court Judges appointed or elected before November 9, 1994. The State of California does not pre-fund the benefits for this fund. The benefits are funded on a pay-as-you-go basis. The Fund maintains a cash equivalent reserve equal to two months of member benefit payments and obligations.

Liquidity Coverage Ratio Analysis

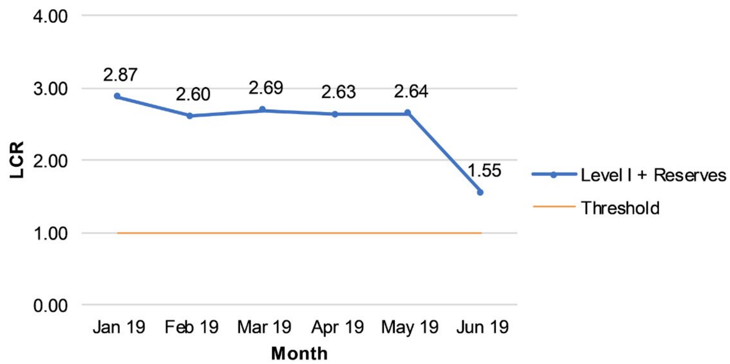
$$\text{Liquidity Coverage Ratios (LCR)} = \frac{\text{cash + assets convertible to cash + incoming cash sources}}{\text{outgoing cash uses + contingent cash uses}}$$

Funding Sources and Graph Details

Level I: Cash & cash equivalents + Reserves
Threshold: Indicates the Fund's ability to cover 100% of monthly obligations.

Normal Environment - 30-Day Liquidity Coverage Ratios

The 30-day LCR included investment and non-investment available cash flows.

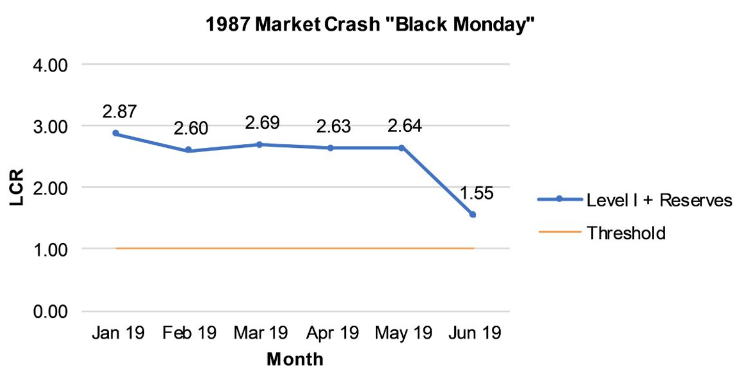


Level I: Level I LCRs remained above the threshold. The Fund maintained adequate inflows to cover monthly liabilities. June's LCR decreased due to benefit payment adjustments.

Reserves: Since Level I LCRs remained above the threshold, it was not necessary to utilize Reserves.

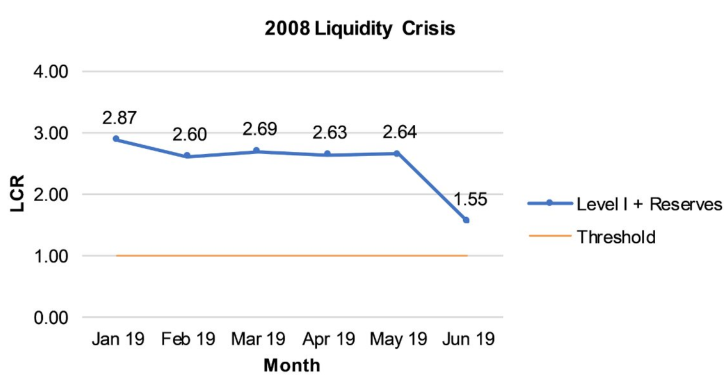
Stressed Environment – 30-Day Liquidity Coverage Ratios

Stressed environment LCR scenarios were calculated assuming starting assets were stressed by the percentages actually experienced over 5 days in the 1987 market crash and 30 days during September 2008. Starting assets were further reduced by a transactional liquidity % equal to the estimated % of the assets that could have been liquidated during the 30-day period. Since 100% of Reserves for JRS I were held in cash and cash equivalents, stress factors did not apply and the LCRs remained the same as the normal environment.



Level I: Level I assets would have been adequate had a stressed event similar to "Black Monday" occurred. June's LCR decreased due to benefit payment adjustments.

Reserves: Level I assets and Reserves were adequate had a stressed event similar to "Black Monday" occurred.



Level I: Level I LCRs were adequate had a stressed event similar to the 2008 Liquidity Crisis occurred. June's LCR decreased due to benefit payment adjustments.

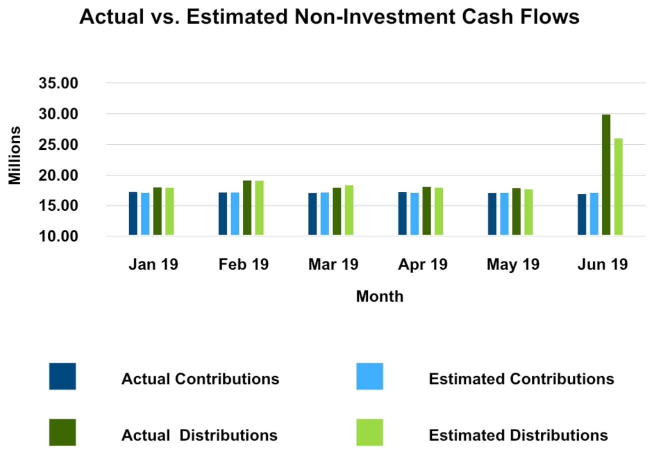
Reserves: Level I and Reserves were adequate had a stressed event similar to the 2008 Liquidity Crisis occurred.

Overall JRF I Liquidity Health

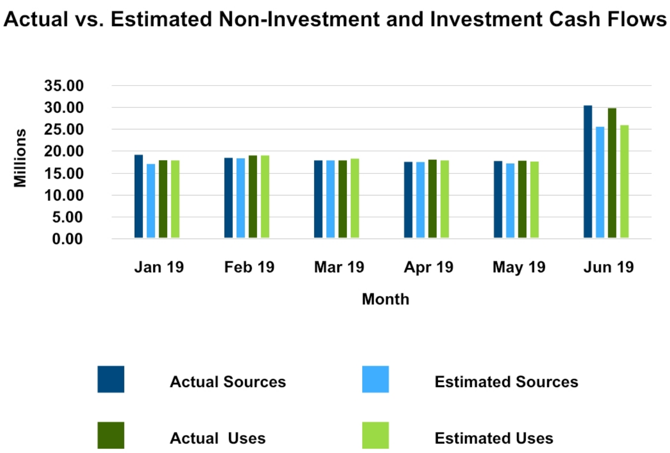
Coverage Ratio Analysis:

- JRF was able to make payments for benefits and operating expenses regardless of market conditions.
- JRF's liquidity remained above the threshold regardless of market conditions.

JRF I Cash Flow Forecasting



Cash flow forecasting accuracy was in the 90th percentile for January through May. June's LCR distribution variance was due to benefit payment adjustments.



Cash flow forecasting accuracy was in the 90th percentile.

Judges' Retirement Fund II (JRF II)

The JRF II provides retirement benefits to California Supreme and Appellate Court Justices and Superior Court Judges first appointed or elected on or after November 9, 1994. This system provides a unique combination of two basic types of retirement benefits: a defined benefit plan and a monetary credit plan. The benefit payment is comprised of member contributions and a portion of employer contributions, plus interest. Monetary credits are incentives for judges to stay in their current position and are lump-sum payments.

Liquidity Coverage Ratio Analysis

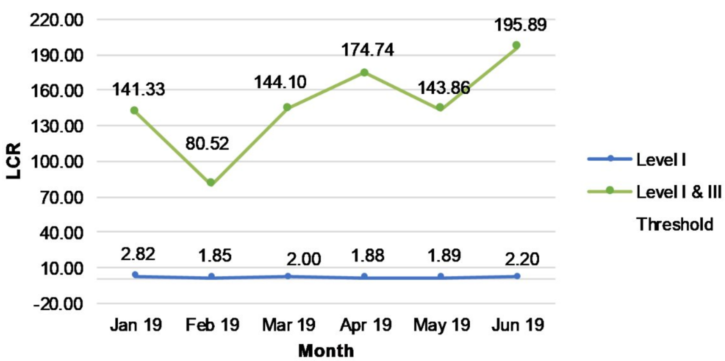
Liquidity Coverage Ratios (LCR) = $\frac{\text{cash + assets convertible to cash + incoming cash sources}}{\text{outgoing cash uses + contingent cash uses}}$

Funding Sources and Graph Details

Level I: Cash & cash equivalents + Reserves
Level III: Sale of public assets
Threshold: Indicates the Fund's ability to cover 100% of monthly obligations.

Normal Environment - 30-Day Liquidity Coverage Ratios

The 30-day LCR included investment and non-investment available cash flows.

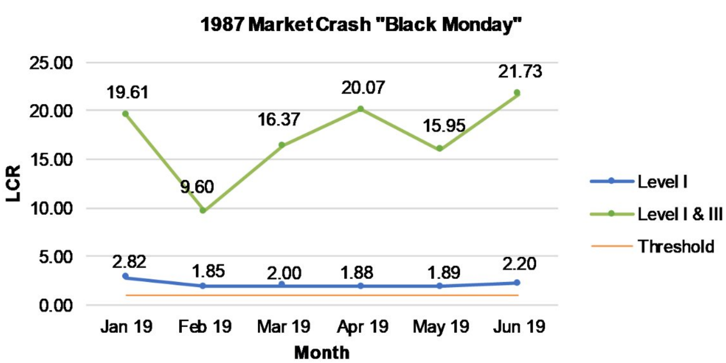


Level I: Level I LCRs remained above the threshold in January through June.

Level I & III: Since Level I LCRs remained above the threshold, it was not necessary to utilize Level III assets. Fluctuations in Level III assets were typically due to monetary credit payments which can double the outflows for the month.

Stressed Environment – 30-Day Liquidity Coverage Ratios

Stressed environment LCR scenarios were calculated assuming starting assets were stressed by the percentages actually experienced over 5 days in the 1987 market crash and 30 days during September 2008. Starting assets were further reduced by a transactional liquidity % equal to the estimated % of the assets that could have been liquidated during the 30-day period. Under the stressed scenarios, asset class sources were reduced to zero.



Level I: Level I assets would have been adequate had a stressed event similar to "Black Monday" occurred.

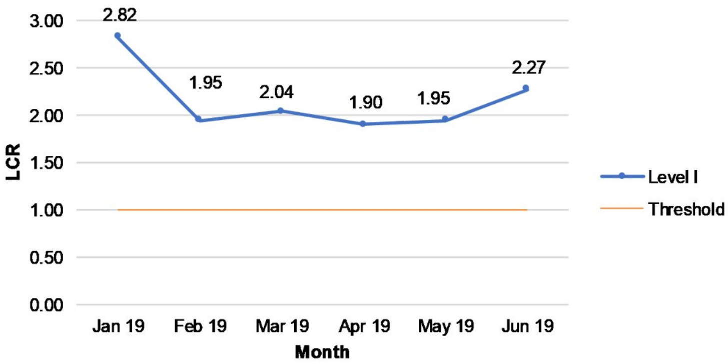
Level I & III: Level I and Level III assets were adequate had a stressed event similar to "Black Monday" occurred. Fluctuations in Level III assets were typically due to monetary credit payments which can double the outflows for the month.

Level I: Level I assets would have been adequate had a stressed event similar to the 2008 Liquidity Crisis occurred.

Level I & III: Level I and Level III assets were adequate had a stressed event similar to the 2008 Liquidity Crisis occurred. Fluctuations in Level III assets were typically due to monetary credit payments which can double the outflows for the month.

Crisis Environment - 10-Day Liquidity Coverage Ratios

The 10-day LCR utilized only the available cash balance ten days prior to the payment date. In a crisis environment, CalPERS would not have access to Level III assets. The calculation assumed a five business day market lockdown as experienced on September 11th, 2001.



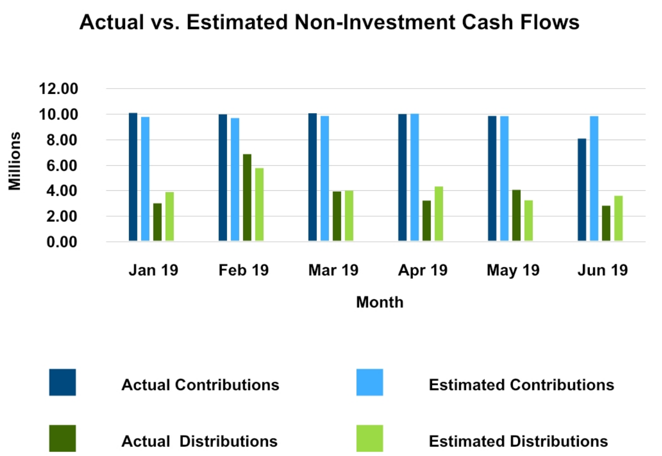
Level I: The JRF II had sufficient cash to cover obligations ten days prior to the payment date. This indicated Level I was adequate had a crisis event occurred. In a crisis environment, CalPERS would not have access to Level III assets since it is assumed there was a five business day market lockdown similar to September 11th, 2001.

Overall JRF II Liquidity Health

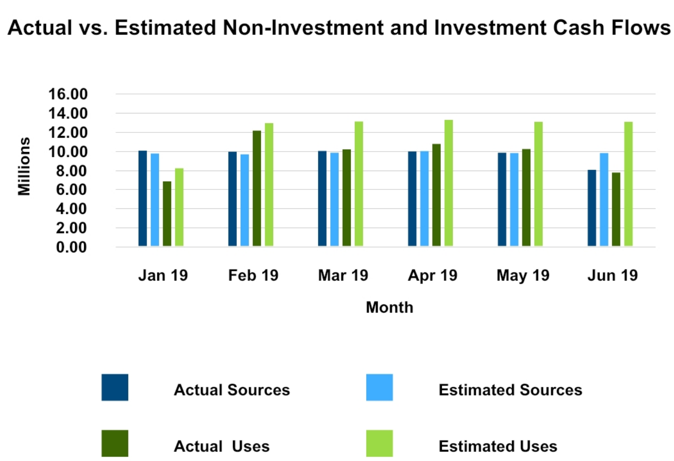
Coverage Ratio Analysis:

- JRF II was able to make payments for benefits and operating expenses regardless of market conditions.
- JRF II's liquidity remained above the threshold regardless of market conditions.

JRF II Cash Flow Forecasting



Cash flow forecasting accuracy for contribution from January through May was in the 90th percentile. June's contribution was variance was due to a delayed inflow from the State. Accuracy for distributions was impacted by the timing of monetary credit payments.



Cash flow forecasting accuracy for contribution from January through May was in the 90th percentile. June's contribution was variance was due to a delayed inflow from the State. Accuracy for distributions was impacted by the timing of monetary credit payments and transfer from investments.

Health Care Fund (HCF)

The HCF accounts for the activities of the CalPERS self-insured health care programs. Health premiums are collected from employers and members and used to directly pay for medical services and pharmaceutical usage.

Liquidity Coverage Ratio Analysis

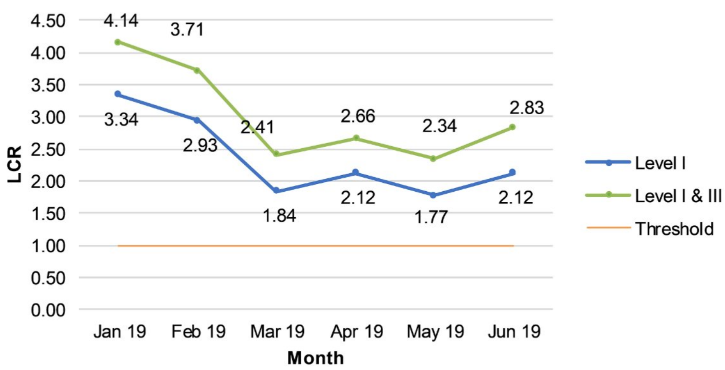
$$\text{Liquidity Coverage Ratios (LCR)} = \frac{\text{cash + assets convertible to cash + incoming cash sources}}{\text{outgoing cash uses + contingent cash uses}}$$

Funding Sources and Graph Details

Level I: Cash & cash equivalents + Reserves
Level III: Sale of public assets
Threshold: Indicates the Fund's ability to cover 100% of monthly obligations.

Normal Environment - 30-Day Liquidity Coverage Ratios

The 30-day LCR included investment and non-investment available cash flows.

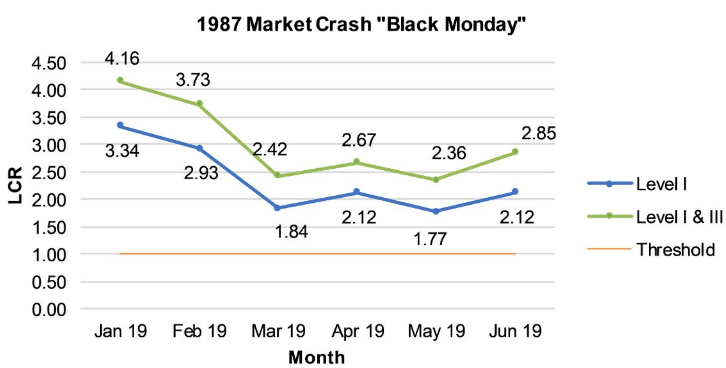


Level I: Level I LCRs remained above the threshold in January through June. The Fund maintained adequate inflows to cover monthly liabilities. January and February's LCRs increased due to increased reimbursements and interest earnings.

Level I & III: Since Level I LCRs remained above the threshold, it was not necessary to utilize Level III assets.

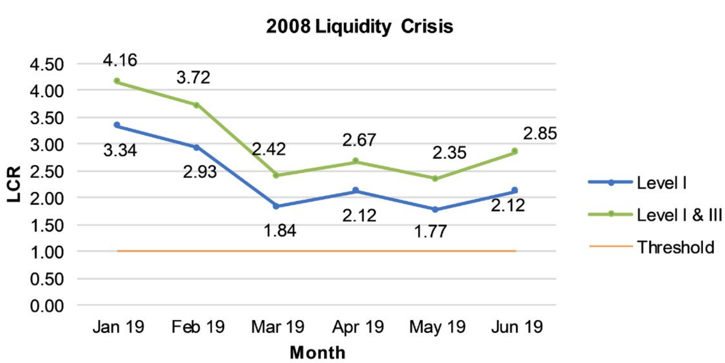
Stressed Environment – 30-Day Liquidity Coverage Ratios

Stressed environment LCR scenarios were calculated assuming starting assets were stressed by the percentages actually experienced over 5 days in the 1987 market crash and 30 days during September 2008. Starting assets were further reduced by a transactional liquidity % equal to the estimated % of the assets that could have been liquidated during the 30-day period. Under the stressed scenarios, asset class sources were reduced to zero.



Level I: Level I assets would have been adequate had a stressed event similar to "Black Monday" occurred. January and February's LCRs increased due to increased reimbursements and interest earnings.

Level I & III: Level I and III assets were adequate had a stressed event similar to "Black Monday" occurred. Since 100% of Level III assets for HCF were held in cash and cash equivalents and fixed income, stress factors had a minimal impact to LCRs.



Level I: Level I assets would have been adequate had a stressed event similar to the 2008 Liquidity Crisis occurred. January and February's LCRs increased due to increased reimbursements and interest earnings.

Level I & III: Level I and Level III assets were adequate had a stressed event similar to the 2008 Liquidity Crisis occurred. Since 100% of Level III assets for HCF were held in cash and cash equivalents and fixed income, stress factors had a minimal impact to LCRs.

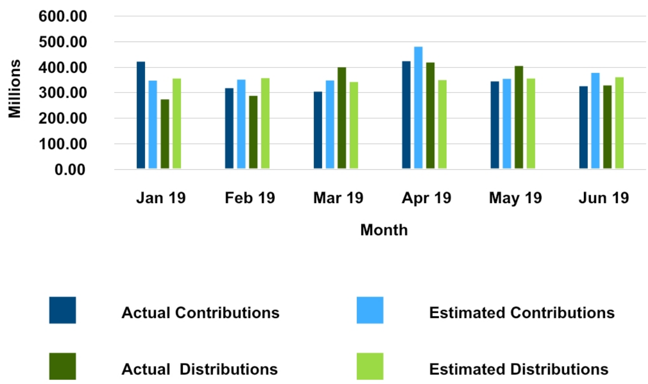
Overall HCF Liquidity Health

Coverage Ratio Analysis:

- HCF was able to make payments for benefits and operating expenses regardless of market conditions.
- HCF's liquidity remained above the threshold regardless of market conditions.

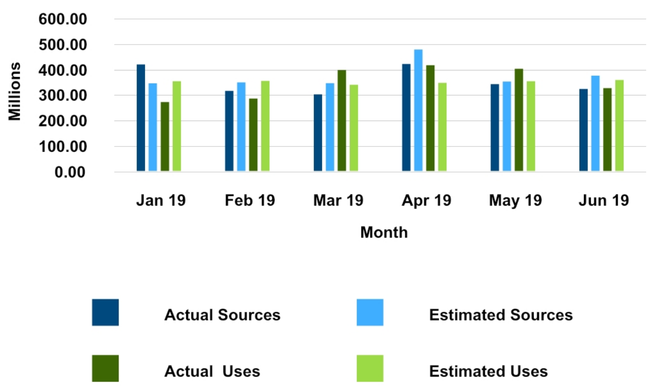
HCF Cash Flow Forecasting

Actual vs. Estimated Non-Investment Cash Flows



Cash flow forecasting accuracy for contribution from January through June was in the 85th percentile. January, April, and June's contribution variance was due to increased reimbursements and interest earnings. March through June's distribution variance was due to pharmacy and medical reimbursements and increased administrative fees.

Actual vs. Estimated Non-Investment and Investment Cash Flows



Cash flow forecasting accuracy for contribution from January through June was in the 85th percentile. January, April, and June's contribution variance was due to increased reimbursements and interest earnings. March through June's distribution variance was due to pharmacy and medical reimbursements and increased administrative fees.

Long Term Care Fund (LTCF)

The LTCF provides financial protection to active participants from the high cost of covered services caused by chronic illness, injury or old age. Long-Term Care products reimburse the cost for covered personal care (activities of daily living) services. LTCF participation is voluntary and benefits are funded by member premiums and the LTCF investment income. The Fund maintains a reserve to mitigate potential funding risk during a stressed environment. The Fund maintains a cash equivalent reserve equal to one month's coverage of expected program obligations.

Liquidity Coverage Ratio Analysis

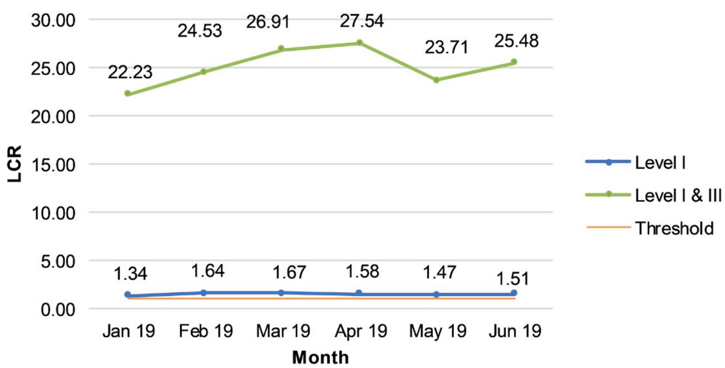
$$\text{Liquidity Coverage Ratios (LCR)} = \frac{\text{cash + assets convertible to cash + incoming cash sources}}{\text{outgoing cash uses + contingent cash uses}}$$

Funding Sources and Graph Details

Level I: Cash & cash equivalents + Reserves
Level III: Sale of public assets
Threshold: Indicates the Fund's ability to cover 100% of monthly obligations.

Normal Environment - 30-Day Liquidity Coverage Ratios

The 30-day LCR included investment and non-investment available cash flows.

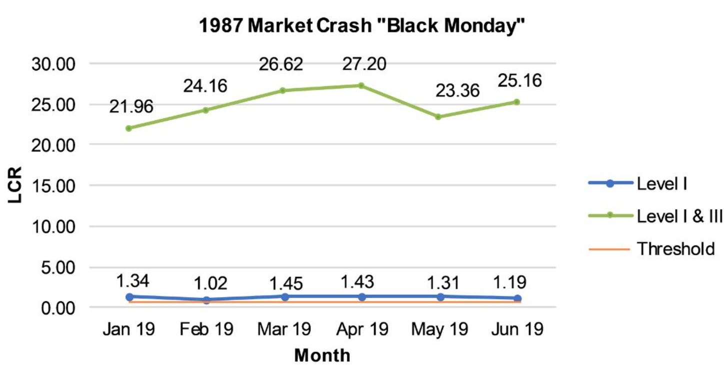


Level I: Level I LCRs remained above the threshold.

Level I & III: Since Level I LCRs remained above the threshold, it was not necessary to utilize Level III assets. The decrease in Level III assets was due to an increase in medical claims.

Stressed Environment – 30-Day Liquidity Coverage Ratios

Stressed environment LCR scenarios were calculated assuming starting assets were stressed by the percentages actually experienced over 5 days in the 1987 market crash and 30 days during September 2008. Starting assets were further reduced by a transactional liquidity % equal to the estimated % of the assets that could have been liquidated during the 30-day period. Under the stressed scenarios, asset class sources were reduced to zero.



Level I: Level I LCRs remained above the threshold.

Level I & III: Level I and Level III assets were adequate had a stressed event similar to "Black Monday" occurred.

Level I: Level I LCRs remained above the threshold.

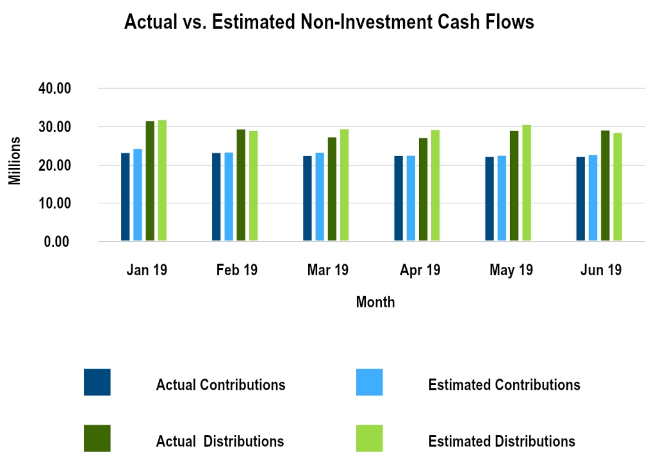
Level I & III: Level I and Level III assets were adequate had a stressed event similar to the 2008 Liquidity Crisis occurred.

Overall LTCF Liquidity Health

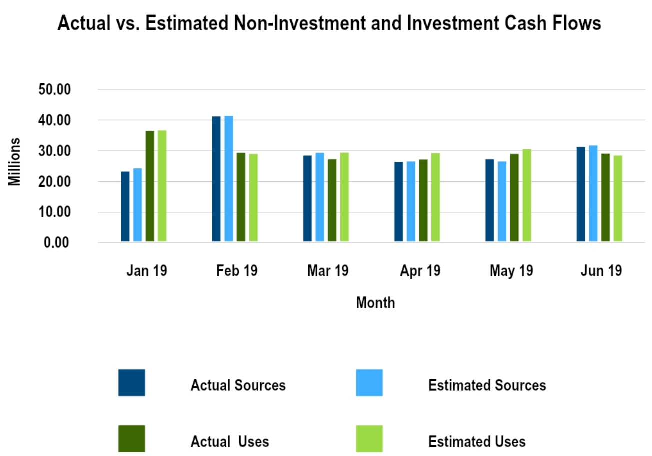
Coverage Ratio Analysis:

- LTCF was able to make payments for benefits and operating expenses regardless of market conditions.
- LTCF's liquidity remained above the threshold regardless of market conditions.

LTCF Cash Flow Forecasting



Cash flow forecasting accuracy was in the 90th percentile.



Cash flow forecasting accuracy was in the 90th percentile.