

# Treasury Analysis and Liquidity Status Report

Item 6c - Attachment 1  
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Prepared for: Finance and Administration Committee - Period Ending December 31, 2018

## 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

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

### Funding Sources and Graph Details

**Level I:** Cash & cash equivalents (assets maturing < 30-days)

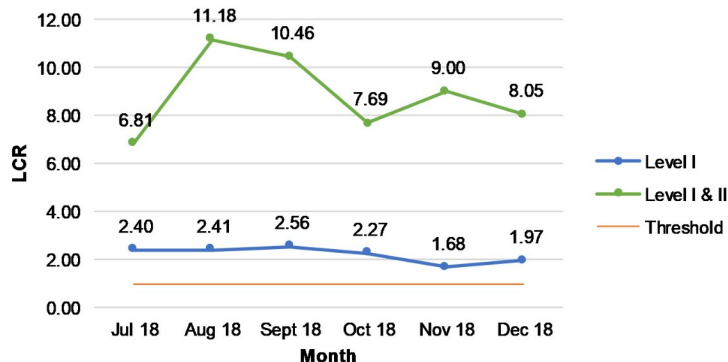
**Level II:** Cash equivalents maturing > 30-days + borrowed liquidity held in cash

**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.

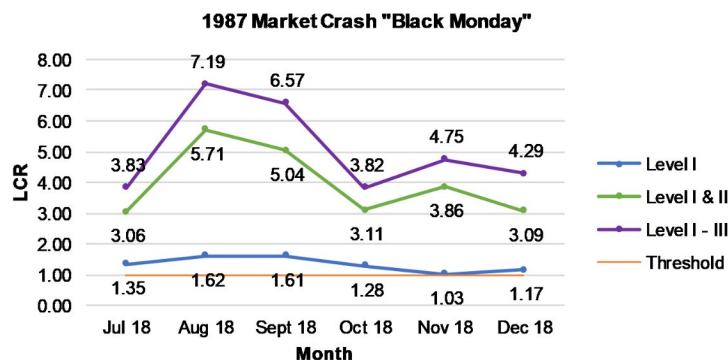


**Level I:** Level I LCRs exceeded the threshold in July through December.

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

### Stressed Environment – 30-Day Liquidity Coverage Ratios

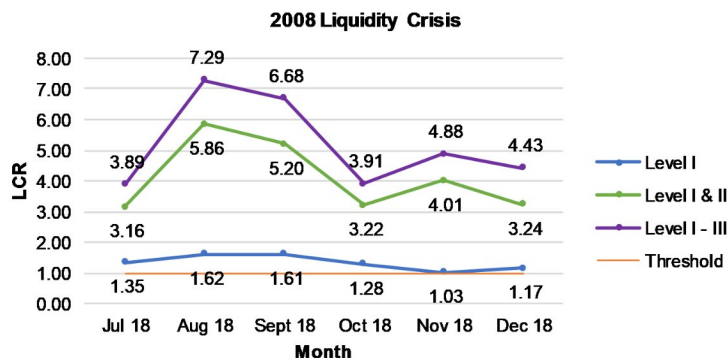
Stressed environment LCR scenarios were calculated assuming starting assets were stressed by the percentages actually experienced over 5 days in the 1987 market crash and 30 days during September 2008. Starting assets were further reduced by a transactional liquidity % equal to the estimated % of the 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.



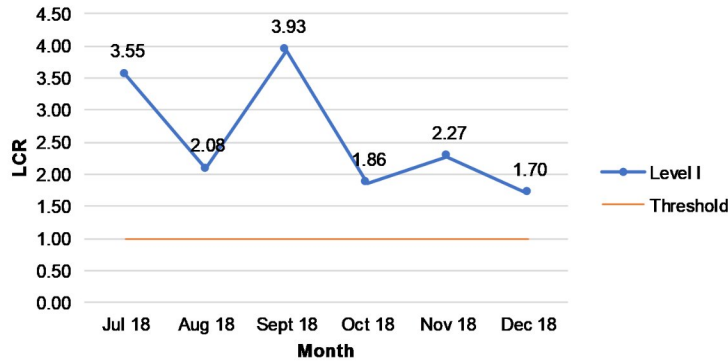
**Level I:** Level I LCRs were adequate had a stressed event similar to the 2008 Liquidity Crisis occurred.

**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 11<sup>th</sup>, 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.

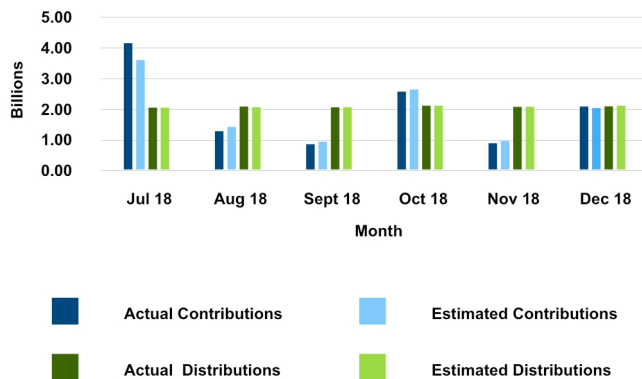
## Overall PERF Liquidity Health

### 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.

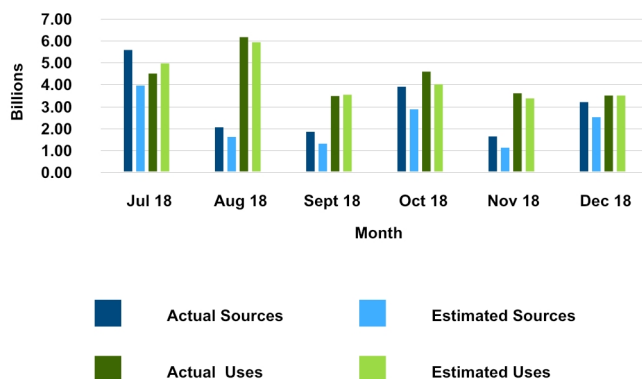
## PERF Cash Flow Forecasting

### Actual vs. Estimated Non-Investment Cash Flows



August through December's cash flow forecasting accuracy was in the 90<sup>th</sup> percentile. July's total cash flow forecasting accuracy was impacted by unfunded accrued liability contributions. The increase in October's and December's contributions were due to State employer contributions.

### Actual vs. Estimated Non-Investment and Investment Cash Flows



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. July through December's cash flow forecasting accuracy was in the 90<sup>th</sup> percentile for uses. July's total cash flow forecasting accuracy was impacted by unfunded accrued liability contributions.

## 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

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

### Funding Sources and Graph Details

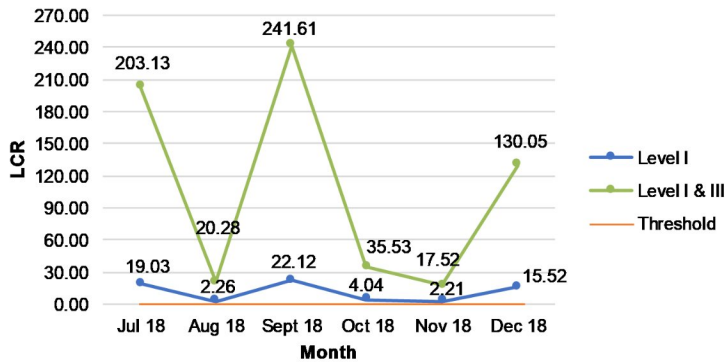
**Level I:** Cash & cash equivalents + Reserves

**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.



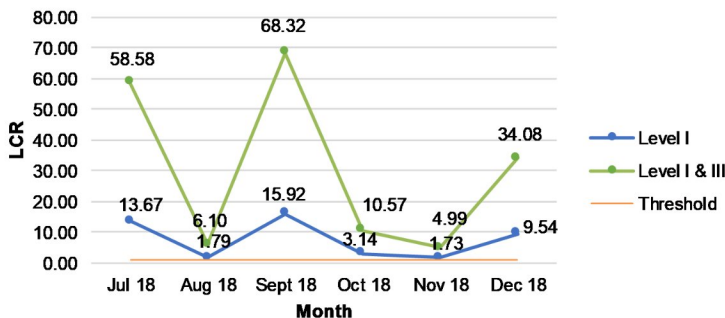
**Level I:** Level I LCRs remained above the threshold in July through December. July, September and December's LCRs increased due to the timing of member benefit payments.

**Level I & III:** Since Level I LCRs remained above the threshold, it was not necessary to utilize Level III assets. July, September and December'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.

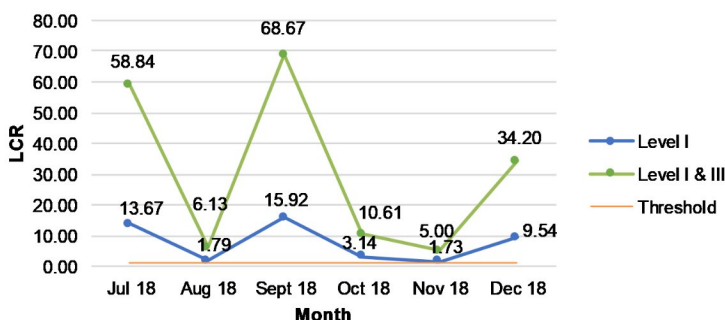
#### 1987 Market Crash "Black Monday"



**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. July, September and December'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. July, September and December's LCRs increased due to the timing of member benefit payments.

#### 2008 Liquidity Crisis

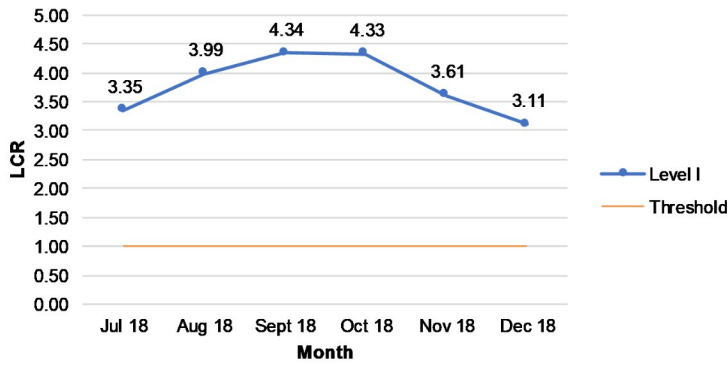


**Level I:** Level I assets would have been adequate had a stressed event similar to the 2008 Liquidity Crisis occurred. This is a closed fund and relies on the planned sale of assets to pay member benefits. July, September and December's LCRs increased due to the timing of member benefit payments.

**Level I & III:** Level I and Level III assets were adequate had a stressed event similar to the 2008 Liquidity Crisis occurred. July, September and December'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 11<sup>th</sup>, 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.

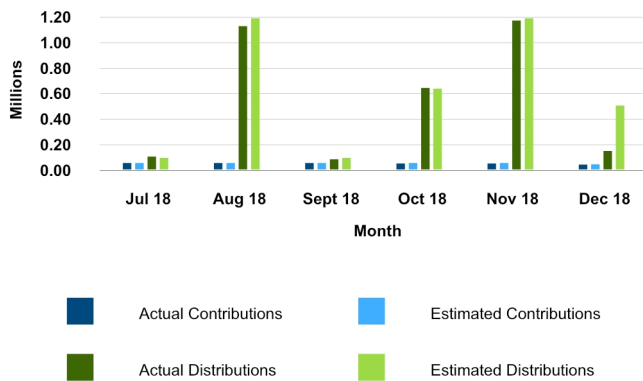
## Overall LRF Liquidity Health

### 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.

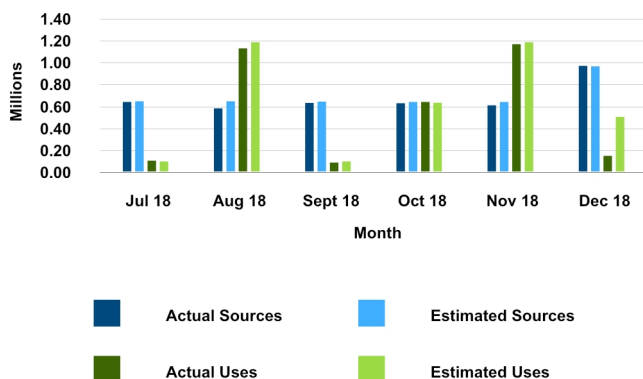
## LRF Cash Flow Forecasting

### Actual vs. Estimated Non-Investment Cash Flows



Cash flow forecasting accuracy for contributions were in the 90<sup>th</sup> percentile. Fluctuations for August, October and November were due to the timing of benefit and tax payments. December's distribution variance was due to the timing of a plan transfer.

### Actual vs. Estimated Non-Investment and Investment Cash Flows



Cash flow forecasting accuracy was in the 90<sup>th</sup> percentile. Fluctuations for August and November were due to the timing of benefit and tax payments. December's variance was due to the timing of a plan transfer.

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Prepared for: Finance and Administration Committee - Period Ending June 30, 2018

## 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

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

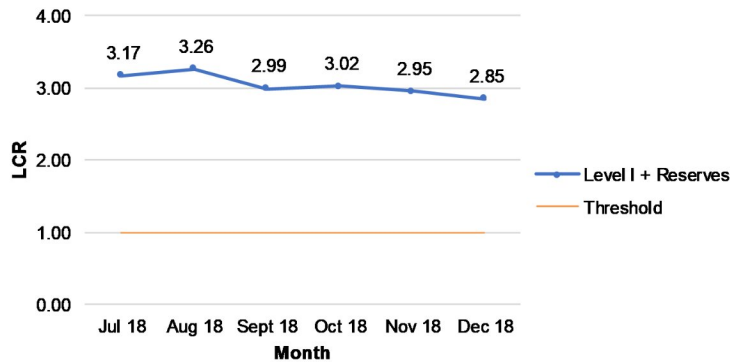
### Funding Sources and Graph Details

**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.

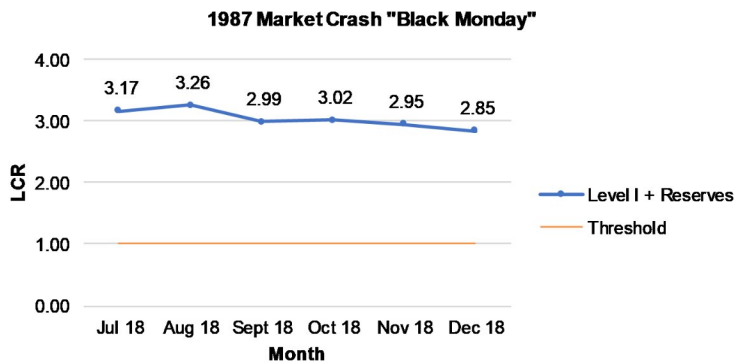


**Level I:** Level I LCRs remained above the threshold. The Fund maintained adequate inflows to cover monthly liabilities.

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

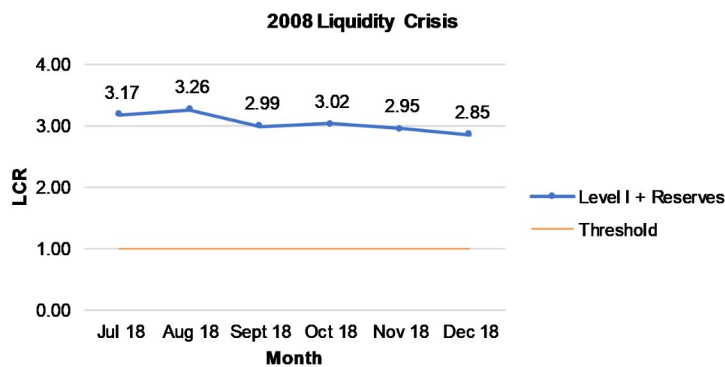
### Stressed Environment – 30-Day Liquidity Coverage Ratios

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.

**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.

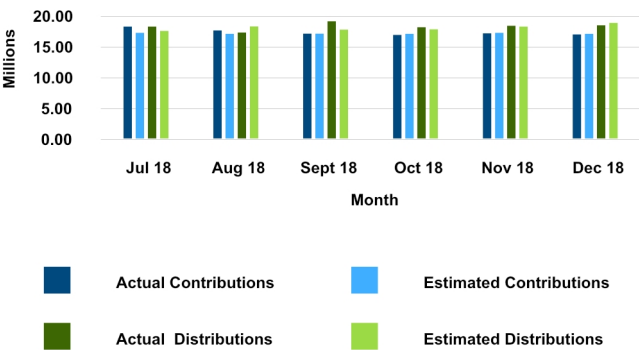
**Reserves:** Level I and Reserves were adequate had a stressed event similar to the 2008 Liquidity Crisis occurred.

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.

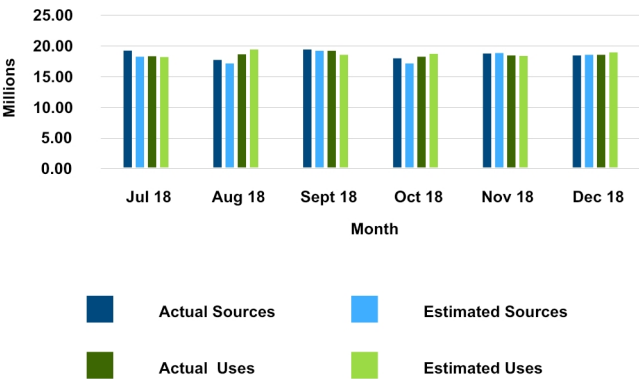
JRF I Cash Flow Forecasting

Actual vs. Estimated Non-Investment Cash Flows



Cash flow forecasting accuracy was in the 90<sup>th</sup> percentile.

Actual vs. Estimated Non-Investment and Investment Cash Flows



Cash flow forecasting accuracy was in the 90<sup>th</sup> percentile.

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## 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

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

### Funding Sources and Graph Details

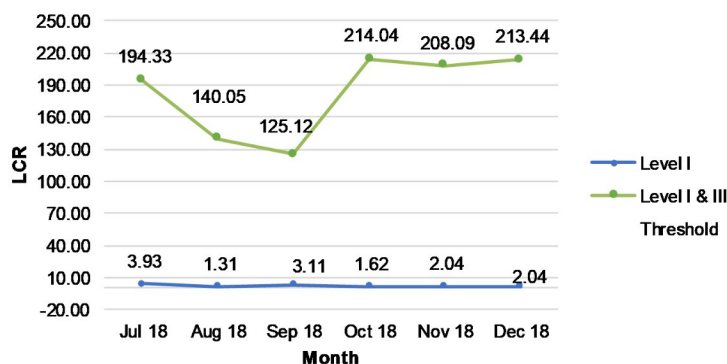
**Level I:** Cash & cash equivalents + Reserves

**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.



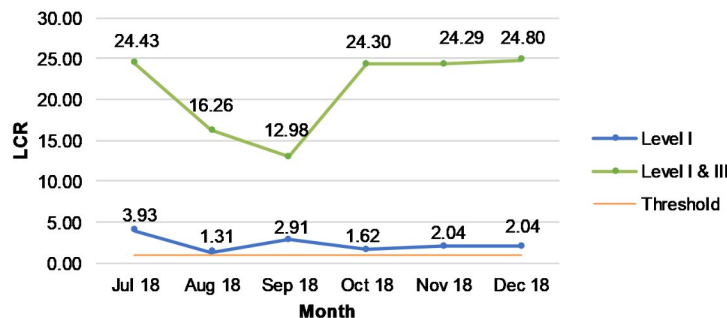
**Level I:** Level I LCRs remained above the threshold in July through December.

**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.

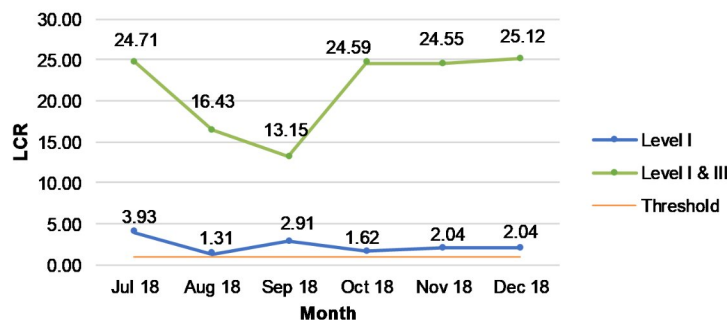
### 1987 Market Crash "Black Monday"



**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.

### 2008 Liquidity Crisis



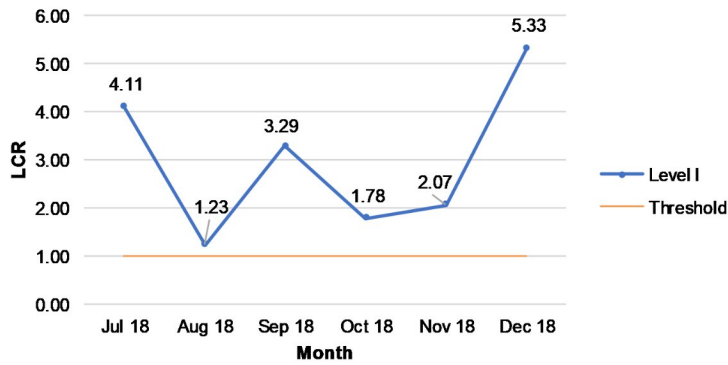
**Level I:** Level I assets would have been adequate had a stressed event similar to the 2008 Liquidity Crisis occurred.

**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 11<sup>th</sup>, 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 11<sup>th</sup>, 2001.

## Overall JRF II Liquidity Health

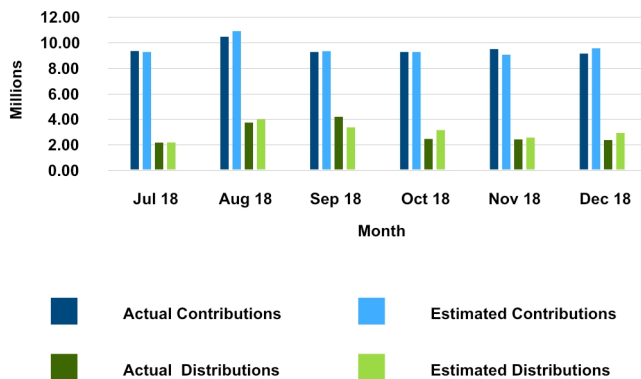
### Coverage Ratio Analysis:

- ✓ 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

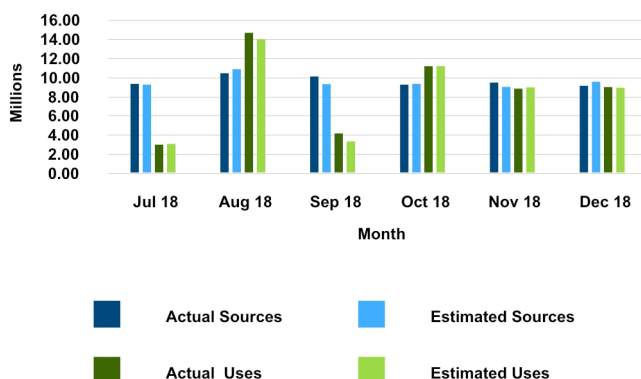
### Actual vs. Estimated Non-Investment Cash Flows

Cash flow forecasting accuracy was in the 90<sup>th</sup> percentile.



### Actual vs. Estimated Non-Investment and Investment Cash Flows

Cash flow forecasting accuracy was in the 90<sup>th</sup> percentile.





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## 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

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

### Funding Sources and Graph Details

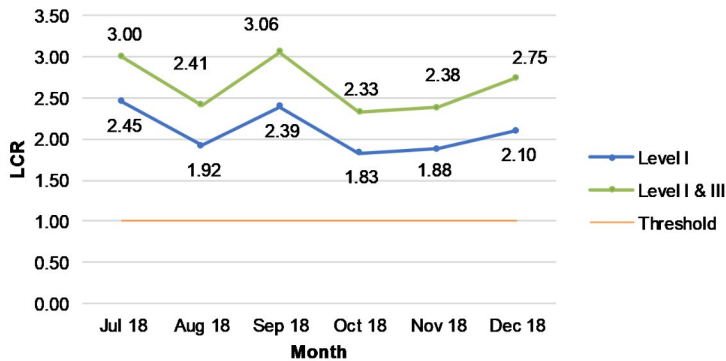
**Level I:** Cash & cash equivalents + Reserves

**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.

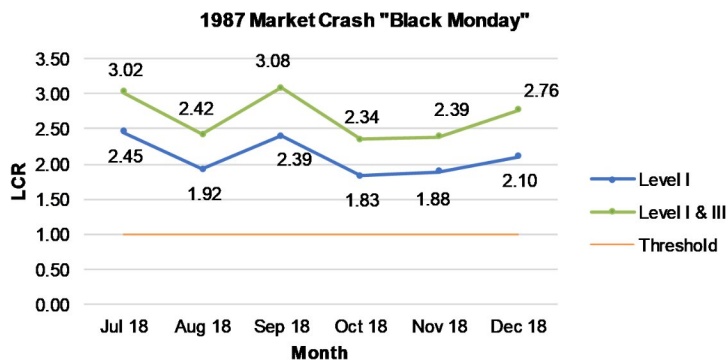


**Level I:** Level I LCRs remained above the threshold in July through December. The Fund maintained adequate inflows to cover monthly liabilities. July and September's LCR increased due to increased reimbursements and interest earnings.

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

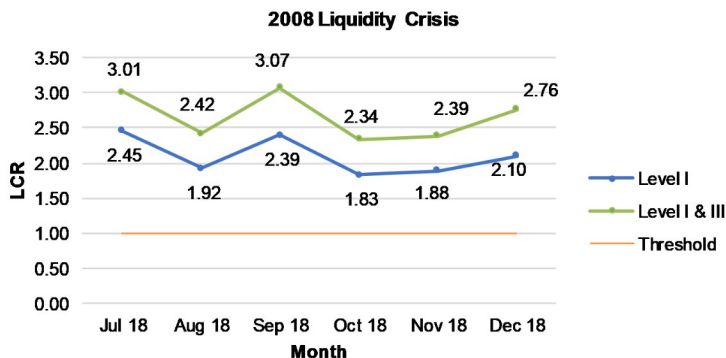
## Stressed Environment – 30-Day Liquidity Coverage Ratios

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. July and September'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. July and September's LCRs increased due to increased reimbursements and interest earnings.

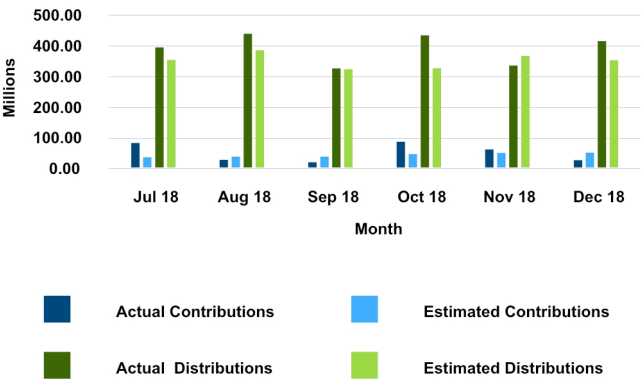
**Level I & III:** Level I and Level III assets were adequate had a stressed event similar to the 2008 Liquidity Crisis occurred. Since 100% of Level III assets for HCF were held in cash and cash equivalents and fixed income, stress factors had a minimal impact to LCRs.

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.

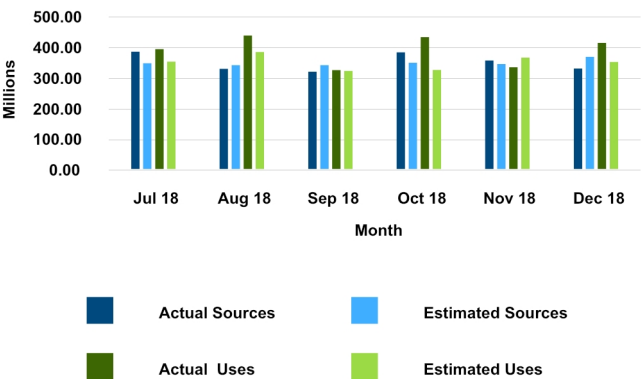
HCF Cash Flow Forecasting

Actual vs. Estimated Non-Investment Cash Flows



July and October's contribution variance was due to increased reimbursements and interest earnings. July's distribution variance was due to increased administrative fees. August's increase in distributions was due to pharmacy and medical reimbursements. December's increase in distributions was due to increased administrative fees.

Actual vs. Estimated Non-Investment and Investment Cash Flows



July and October's contribution variance was due to increased reimbursements and interest earnings. July's distribution variance was due to increased administrative fees. August's increase in distributions was due to pharmacy and medical reimbursements. December's increase in distributions was due to increased administrative fees.

# Treasury Analysis and Liquidity Status Report

Prepared for: Finance and Administration Committee - Period Ending December 31, 2018

## 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

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

### Funding Sources and Graph Details

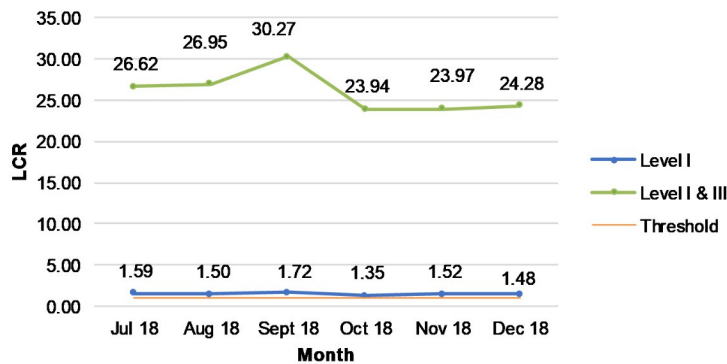
**Level I:** Cash & cash equivalents + Reserves

**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.

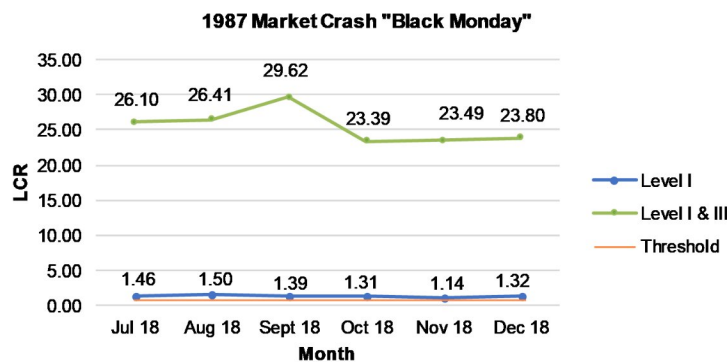


**Level I:** Level I LCRs remained above the threshold.

**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.

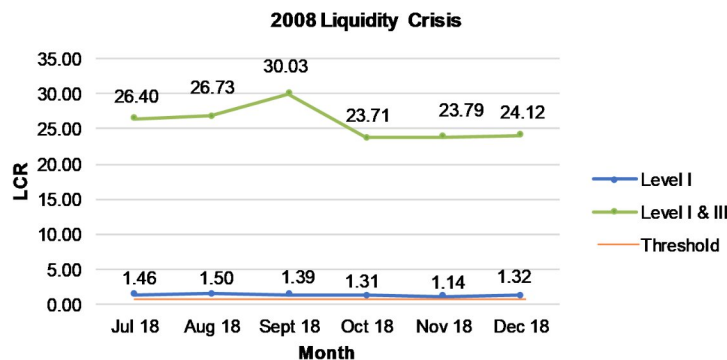
## Stressed Environment – 30-Day Liquidity Coverage Ratios

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.

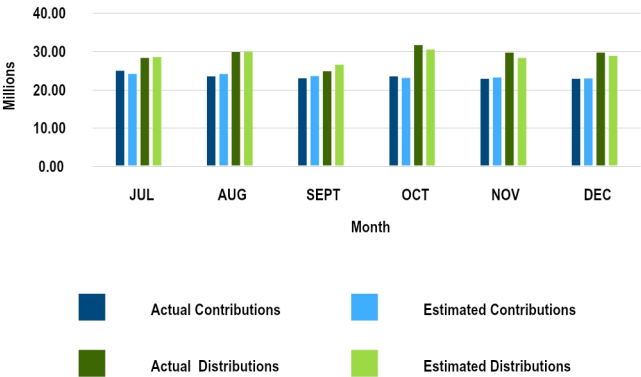
**Level I & III:** Level I and Level III assets were adequate had a stressed event similar to the 2008 Liquidity Crisis occurred.

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.

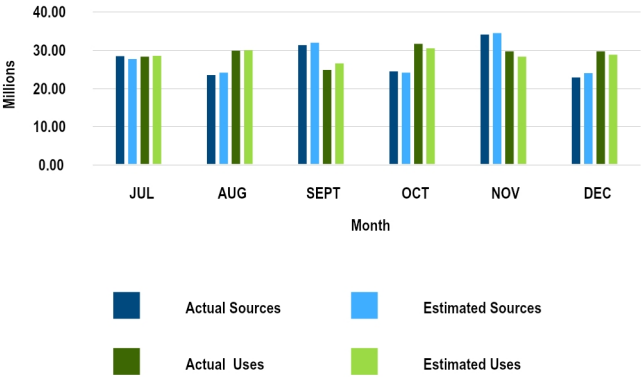
LTCF Cash Flow Forecasting

Actual vs. Estimated Non-Investment Cash Flows



Cash flow forecasting accuracy was in the 90<sup>th</sup> percentile.

Actual vs. Estimated Non-Investment and Investment Cash Flows



Cash flow forecasting accuracy was in the 90<sup>th</sup> percentile.