• Investment Vehicles
• Methods of Accounting
• GASB 31
• Risks to Portfolios
• Developing an Investment Strategy
• GASB 40
• Total Return
• GASB Exposure Draft on Fair Value
Investment Vehicles

“Is it better to invest during a bull market or bear market? Depends...would you rather be gored or mauled?”
Equities (Stocks)

- Issued by publicly owned corporations
  - Ownership interest
  - May pay dividends

- Rights to future growth and profits

- Market fluctuations can create fluctuations in value
  - No guarantee of dividends
  - No guarantee of return of investment

- Risk of poor corporate performance
Mutual Funds

- Customized by asset classes, maturities, etc.
- Highly liquid
- Convenient
- Constant Net Asset Value (Low Volatility)
  - 2a-7 funds (money market funds)
  - $ in, $ out
  - Money market funds typically lag changes in short-term investments
- Fluctuating Net Asset Value (High Volatility)
  - Bond and equity funds
  - Can result in principal losses
- Fees netted from income
- Don’t invest without first reading the fund’s prospectus
Money Market Fund / LGIP

- Constant share price of $1.00
- Daily liquidity
- Yield fluctuates with market
- Restrictions on weighted average life
- Restrictions on issuer concentrations
Repurchase Agreements

- An agreement in which an investor buys securities from a counterparty who agrees to buy the securities back at a later date at an agreed upon price and rate
- Yield determines the “repurchase price”

**Diagram:**
- **Investor:**
  - Cash
  - Delivery vs. Payment
- **Counterparty:**
  - Securities
  - Returned to broker/dealer who “re-purchases” them
  - Cash + Interest

<table>
<thead>
<tr>
<th>Transaction Begins</th>
<th>Transaction Ends</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investor</td>
<td>Counterparty</td>
</tr>
<tr>
<td>Cash</td>
<td>Securities</td>
</tr>
<tr>
<td>Delivery vs. Payment</td>
<td>Returned to broker/dealer who “re-purchases” them</td>
</tr>
</tbody>
</table>
Fixed Income Securities

- A debt obligation of a corporation, governmental entity or trust
- Typically provide periodic interest payments
  - fixed rate
  - floating rate
- At maturity, the face value or principal of the security is paid back to the investor
Types of Fixed Income Securities

<table>
<thead>
<tr>
<th>Money Market</th>
<th>Bonds</th>
</tr>
</thead>
<tbody>
<tr>
<td>• U.S. Treasury Bills</td>
<td>• U.S. Treasury Notes/Bonds</td>
</tr>
<tr>
<td>• Federal Agency Discount Notes</td>
<td>• Federal Agency Notes/Bonds</td>
</tr>
<tr>
<td>• Commercial Paper</td>
<td>• Mortgage Backed Securities</td>
</tr>
<tr>
<td>• Bankers’ Acceptances</td>
<td>• Corporate Notes</td>
</tr>
<tr>
<td>• Repurchase Agreements</td>
<td>• Mutual Funds (aka Bond Funds)</td>
</tr>
<tr>
<td>• Certificates of Deposit</td>
<td></td>
</tr>
<tr>
<td>• Money Market Mutual Funds</td>
<td></td>
</tr>
</tbody>
</table>

Mature in < 1 Year

Mature in > 1 Year
Interest at Maturity

- Purchased at Par
- Pays a stated interest rate in a single payment at maturity

“For years, we’ve been playing by old rules and the results have been dismal. It’s time for a bold new direction!”
Discount Securities

• No periodic interest is paid
• All interest paid at maturity
• Discounted
  – Securities issued at a discount
  – Income equal to the difference between the purchase price and face
• Earnings rate is inputted; usually on a 360 day basis
Interest Bearing

- Can be purchased at par, at a premium (above par) or at a discount (below par)
- Pays periodic interest, typically semi-annually or monthly
- Interest can be calculated in a variety of methods
Original Coupon Bond
Coupon Security

2 year 5% Coupon
$1,000,000 par

$1,025,000

Year 1
$25,000
$25,000

Year 2
$25,000

-$1 million

Principal
Interest
Floating/Variable Rate Interest Securities

- Interest rate periodically resets
  - Rate is not fixed for entire term
  - Reset period varies (daily, weekly, monthly, quarterly)
- Coupon normally based on financial index
  - Fed Funds Rate
  - 91-day Treasury Bills
  - LIBOR
- Issued by Federal Agencies and corporations
Relationship between Basis and Yield

- Securities are quoted and traded on different basis
- Rates as quoted are not necessarily comparable

<table>
<thead>
<tr>
<th>Security</th>
<th>Type</th>
<th>Basis</th>
<th>Yield Quoted</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Treasury Bills</td>
<td>Discount</td>
<td>Actual/360</td>
<td>Money Market Yield</td>
</tr>
<tr>
<td>U.S. Treasury Notes</td>
<td>Coupon-Bearing</td>
<td>Actual/Actual</td>
<td>Government Bond Equivalent Yield</td>
</tr>
<tr>
<td>U.S. Treasury Bonds</td>
<td>Coupon-Bearing</td>
<td>Actual/Actual</td>
<td>Government Bond Equivalent Yield</td>
</tr>
<tr>
<td>U.S. Treasury STRIPS</td>
<td>Discount</td>
<td>Actual/Actual</td>
<td>Government Bond Equivalent Yield</td>
</tr>
<tr>
<td>Agency Discount Notes</td>
<td>Discount</td>
<td>Actual/360</td>
<td>Money Market Yield</td>
</tr>
<tr>
<td>Federal Agency Notes</td>
<td>Coupon-bearing</td>
<td>30/360</td>
<td>Corporate Bond Equivalent Yield</td>
</tr>
<tr>
<td>Commercial Paper</td>
<td>Discount</td>
<td>Actual/360</td>
<td>Money Market Yield</td>
</tr>
<tr>
<td>Bankers’ Acceptances</td>
<td>Discount</td>
<td>Actual/360</td>
<td>Money Market Yield</td>
</tr>
<tr>
<td>Municipal Bonds</td>
<td>Coupon-bearing</td>
<td>30/360</td>
<td>Corporate Bond Equivalent Yield</td>
</tr>
<tr>
<td>Certificates of Deposit</td>
<td>Coupon-bearing</td>
<td>Actual/360</td>
<td>Money Market Yield</td>
</tr>
<tr>
<td>Repurchase Agreements</td>
<td>Coupon-bearing</td>
<td>Actual/360</td>
<td>Money Market Yield</td>
</tr>
<tr>
<td>ReverseRepo</td>
<td>Coupon-bearing</td>
<td>Actual/360</td>
<td>Money Market Yield</td>
</tr>
<tr>
<td>Corporate Bonds</td>
<td>Coupon-bearing</td>
<td>30/360</td>
<td>Corporate Bond Equivalent Yield</td>
</tr>
</tbody>
</table>
Methods of Accounting

"However, by using an alternate method of accounting...."
Cash Basis

- Based on completed transactions (receipt of interest, proceeds of sale, etc.)
- Recognizes impact on financial statements only when assets are exchanged
- Is verifiable and objective
- Some potential for manipulation (e.g., purchasing investments at a deep discount that mature into the next fiscal year)
Accrual Basis

- Revenues are recognized when earned
- Expenses are recognized when incurred, regardless of when the cash flows occur
- Based on matching principle
- Provides a better measurement of current performance
- It is subject to some management discretion (due to the subjectivity associated with the estimation that is an inherent aspect of the accrual process)
Accrual Basis

- **Straight Line**
  - Equal amount recognized in each accounting period
  - For example if $1 million par of a security was purchased for $900,000 that would not mature for 5 years; $20,000 of income would be recognized each year

- **Constant Yield**
  - Calculates amount of income to be recognized in each period so that a consistent rate of return is maintained
  - For example if $1 million par of a security was purchased for $900,000 that would not mature for 5 years; $19,156 of income would be recognized in the first year; $19,563, $19,980, $20,405 and $20,896 respectively each following year
Constant Yield

- **First Year**
  - $19,156 / $900,000 = 2.13%
- **Second Year**
  - $19,563 / $919,156 = 2.13%
- **Third Year**
  - $19,980 / $938,719 = 2.13%
- **Fourth Year**
  - $20,405 / $958,699 = 2.13%
- **Fifth Year**
  - $20,896 / $979,104 = 2.13%
Accrual Basis

![Graph](image)

**Straight Line Vs Constant Yield**

- **Income Recognized**
  - 19,000
  - 19,500
  - 20,000
  - 20,500
  - 21,000

- **Year**
  - 1
  - 2
  - 3
  - 4
  - 5

*For illustrative purposes only.*
Fair Value

- Recognizes market fluctuation
- Investments are reported at fair value on the balance sheet
- Changes in fair value are reported on the income statement as revenue
Interest Rates and Fair Values

Diagram:

- Interest Rates increase, Fair Value decreases.
- Interest Rates decrease, Fair Value increases.
Changes in Interest Rates / Yields

- $1 million par of a security was purchased for $800,000 that would not mature for 5 years
  - $36,409 of income would be recognized in the first year; $38,174, $39,916, $41,854 and $43,647 respectively each following year

- $1 million par of a security was purchased for $950,000 that would not mature for 5 years
  - $9,769 of income would be recognized in the first year; $9,896, $9,999, $10,130 and $10,206 respectively each following year
Changes in Interest Rates / Yields

- Cost = $800,000
  - First Year
    - \( \frac{36,409}{800,000} = 4.56\% \)
  - Second Year
    - \( \frac{38,174}{836,409} = 4.56\% \)
  - Third Year
    - \( \frac{39,916}{874,583} = 4.56\% \)
  - Fourth Year
    - \( \frac{41,854}{914,499} = 4.56\% \)
  - Fifth Year
    - \( \frac{43,647}{956,353} = 4.56\% \)

- Cost = $950,000
  - First Year
    - \( \frac{9,769}{950,000} = 1.03\% \)
  - Second Year
    - \( \frac{9,896}{959,769} = 1.03\% \)
  - Third Year
    - \( \frac{9,999}{969,665} = 1.03\% \)
  - Fourth Year
    - \( \frac{10,130}{979,664} = 1.03\% \)
  - Fifth Year
    - \( \frac{10,206}{989,794} = 1.03\% \)
Total Return vs. Book Value Return

- An entity buys $1,000,000 par value of 5-Year Treasury Notes at a yield of 5%. The Notes have a coupon of 5% and were purchased at par.

<table>
<thead>
<tr>
<th>Scenario - After 3 Months</th>
<th>Total Return</th>
<th>Book Value Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest Rates Are Unchanged</td>
<td>Market Value of Securities $1,000,000 12,500 Total $1,012,500</td>
<td>Book Value of Securities $1,000,000 12,500 Total $1,012,500</td>
</tr>
<tr>
<td></td>
<td>Total Return = 5.00%</td>
<td>Book Value Return = 5.00%</td>
</tr>
<tr>
<td>Interest Rates Have Increased by 25 Basis Points</td>
<td>Market Value of Securities $989,528 12,500 Total $1,002,028</td>
<td>Book Value of Securities $1,000,000 12,500 Total $1,012,500</td>
</tr>
<tr>
<td></td>
<td>Total Return = 0.81%</td>
<td>Book Value Return = 5.00%</td>
</tr>
<tr>
<td>Interest Rates Have Decreased by 25 Basis Points</td>
<td>Market Value of Securities $1,010,446 12,500 Total $1,022,946</td>
<td>Book Value of Securities $1,000,000 12,500 Total $1,012,500</td>
</tr>
<tr>
<td></td>
<td>Total Return = 9.49%</td>
<td>Book Value Return = 5.00%</td>
</tr>
</tbody>
</table>
Comparison of Methods – Discount Security

• Bank of Tokyo Commercial Paper, $1,000,000 par bought 8/16 for $998,576; matures 12/17

• Amortized cost as of August 31 - $998,751

• Fair value on August 31 - $998,620
Comparison of Methods – Discount Security

<table>
<thead>
<tr>
<th>Cash Basis</th>
<th>Investments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>Cash Basis</td>
</tr>
<tr>
<td>998,576</td>
<td>998,576</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amortized Cost</th>
<th>Fair Market Value</th>
</tr>
</thead>
</table>
Comparison of Methods – Discount Security

Amortized Cost

<table>
<thead>
<tr>
<th>Cash</th>
<th>998,576</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investments</td>
<td>998,576</td>
</tr>
<tr>
<td></td>
<td>175</td>
</tr>
<tr>
<td>Investment Income</td>
<td>175</td>
</tr>
</tbody>
</table>
## Comparison of Methods – Discount Security

### Fair Market Value

<table>
<thead>
<tr>
<th>Cash</th>
<th>Investments</th>
</tr>
</thead>
<tbody>
<tr>
<td>998,576</td>
<td>998,576</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Investment Income</th>
<th>44</th>
</tr>
</thead>
<tbody>
<tr>
<td>44</td>
<td></td>
</tr>
</tbody>
</table>
### Comparison of Methods – Discount Security

<table>
<thead>
<tr>
<th></th>
<th>Cash</th>
<th>Accrual</th>
<th>Fair Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>August</td>
<td>-</td>
<td>175</td>
<td>44</td>
</tr>
<tr>
<td>September</td>
<td>-</td>
<td>361</td>
<td>1,171</td>
</tr>
<tr>
<td>October</td>
<td>-</td>
<td>362</td>
<td>(28)</td>
</tr>
<tr>
<td>November</td>
<td>-</td>
<td>360</td>
<td>163</td>
</tr>
<tr>
<td>December</td>
<td>1,424</td>
<td>166</td>
<td>74</td>
</tr>
<tr>
<td>Total</td>
<td>1,424</td>
<td>1,424</td>
<td>1,424</td>
</tr>
</tbody>
</table>
Comparison of Methods – Interest Bearing Security

- FNMA Note  0.500% coupon, $2,000,000 par bought 8/3/2012 for $1,999,400: accrued interest $0 matures 8/7/2015

- Amortized cost as of August 31 - $1,999,413, accrued interest of $667

- Fair value basis as of August 31 - $1,999,364, accrued interest of $667
Comparison of Methods – Interest Bearing Security

<table>
<thead>
<tr>
<th>Cash</th>
<th>Investments</th>
<th>Acc’d Interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,999,400</td>
<td>1,999,400</td>
<td></td>
</tr>
</tbody>
</table>

Cash Basis
Amortized Cost
Fair Market Value
## Comparison of Methods – Interest Bearing Security

<table>
<thead>
<tr>
<th>Cash</th>
<th>Investments</th>
<th>Acc’d Interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,999,400</td>
<td>1,999,400</td>
<td>667</td>
</tr>
<tr>
<td>Investment Income</td>
<td>680</td>
<td>13</td>
</tr>
</tbody>
</table>
## Comparison of Methods – Interest Bearing Security

<table>
<thead>
<tr>
<th></th>
<th>Cash</th>
<th>Investments</th>
<th>Acc’d Interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fair Market Value</td>
<td>1,999,400</td>
<td>1,999,400</td>
<td>667</td>
</tr>
<tr>
<td>Investment Income</td>
<td>631</td>
<td>36</td>
<td></td>
</tr>
</tbody>
</table>
Comparison of Methods – Interest Bearing Security

- Cash basis - No income earned as of August 31, on balance sheet at a value of $1,944,400

- Accrual basis - Income of $680 as of August 31, on balance sheet at a value of $1,999,413, accrued interest of $667

- Fair value basis - Income of $631 as of August 31, on balance sheet at a value of $1,999,364, accrued interest of $667
Examples

- Calculate the investment income earned to date on a discount security, $540,000 par purchased on July 1 for $537,000, amortized value on August 31 is $537,600, market value is $538,500 on August 31.

- Calculate the investment income on a Note, $1,700,000 par with an interest rate of 1.75%; purchased for $1,717,000 with accrued interest of $3,000 at the beginning of the fiscal period. Current amortized cost is $1,713,000 and market value is $1,723,000. The current accrued interest is $8,800.
Portfolio Level Calculations

- Start – Current month-end accrued interest
- Deduct – Purchased accrued interest
- Add – Coupons received and interest received on sold securities
- Deduct - Prior month-end accrued interest
Portfolio Level Calculations

- Start – Current month-end: $185,000
- Deduct – Purchased interest: $(5,000)
- Add – Coupons and interest sold: $30,000
- Deduct - Prior month-end: $(175,000)

**What is the journal entry?**

<table>
<thead>
<tr>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td></td>
</tr>
<tr>
<td>Accrued Interest</td>
<td></td>
</tr>
<tr>
<td>Investment Income</td>
<td></td>
</tr>
</tbody>
</table>
Portfolio Level Calculations

- Start – Current month-end fair value or amortized cost
- Deduct – Purchases
- Add – Sales, maturities or paydowns
- Deduct - Prior month-end fair value or amortized cost
Portfolio Level Calculations

• Start – Current month-end $14,050,000
• Deduct – Purchases (6,750,000)
• Add – sales, maturities 5,000,000
• Deduct - Prior month-end (13,000,000)

• What is the journal entry?

Debit Credit

• Cash
• Investments
• Investment Income
Example

- Current month-end investment value $10,000,000, accrued interest $50,000
- Prior month-end investment value $9,800,000, accrued interest $55,000
- **What are the journal entries?**

<table>
<thead>
<tr>
<th>Transaction Type</th>
<th>Description</th>
<th>Par</th>
<th>Proceeds</th>
<th>Accrued Interest</th>
<th>Total Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUY</td>
<td>FHLB NOTE</td>
<td>2,820,000</td>
<td>(2,850,000)</td>
<td>(900)</td>
<td>(2,850,900)</td>
</tr>
<tr>
<td>BUY</td>
<td>FHLB NOTE</td>
<td>830,000</td>
<td>(840,000)</td>
<td>0</td>
<td>(840,000)</td>
</tr>
<tr>
<td>BUY</td>
<td>1.625% 03/27/2017</td>
<td>2,820,000</td>
<td>(2,850,000)</td>
<td>(900)</td>
<td>(2,850,900)</td>
</tr>
<tr>
<td>BUY</td>
<td>1.625% 04/28/2017</td>
<td>830,000</td>
<td>(840,000)</td>
<td>0</td>
<td>(840,000)</td>
</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td></td>
<td>3,650,000</td>
<td>(3,690,000)</td>
<td>(900)</td>
<td>(3,690,900)</td>
</tr>
<tr>
<td>INTEREST RECEIPT</td>
<td>ANY BANK CD</td>
<td>3,400,000</td>
<td>0</td>
<td>4,450</td>
<td>4,450</td>
</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td></td>
<td>3,400,000</td>
<td>0</td>
<td>4,450</td>
<td>4,450</td>
</tr>
<tr>
<td>SELL</td>
<td>FHLB NOTE</td>
<td>2,160,000</td>
<td>2,163,600</td>
<td>800</td>
<td>2,164,400</td>
</tr>
<tr>
<td>SELL</td>
<td>US TREASURY NOTE</td>
<td>650,000</td>
<td>694,000</td>
<td>11,300</td>
<td>705,300</td>
</tr>
<tr>
<td>SELL</td>
<td>FHLB NOTE</td>
<td>840,000</td>
<td>841,400</td>
<td>350</td>
<td>841,750</td>
</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td></td>
<td>3,650,000</td>
<td>3,699,000</td>
<td>12,450</td>
<td>3,711,450</td>
</tr>
</tbody>
</table>
Evaluation of Options for Recordkeeping During the Year

Option No. 1 – Record investment at cost, don’t amortize discount, and adjust to fair value at end of year

– Meets requirements of GAAP
– Simplicity
– Disadvantage – No recognition during the year of fair value change that will be recognized at end of year
Evaluation of Options for Recordkeeping During the Year

Option No. 2 – Record investment at cost, amortize discount on a monthly basis, and adjust to fair value at end of year

– Meets requirements of GAAP
– Monthly amortization of discount approximates the monthly change in fair value
– Smaller adjustment at end of year
Evaluation of Options for Recordkeeping During the Year

Option No. 3 – Record investment at cost and each month or quarter adjust to fair value

- Meets requirements of GAAP
- Recognizes on a monthly or quarterly basis the full amount of the fair value adjustment applicable to that reporting period
- No distortion created by year end adjustment
- Disadvantage – may require more time to identify and calculate the fair value adjustment each month/quarter
Investments Purchased With Accrued Interest

- Sometimes when investments are purchased, the prior owner of the investment is paid for the portion of interest revenue earned (but not yet remitted)
- Some local governments simply **debit interest revenue** for that portion of the payment made to the prior owner when the investment is acquired by that local government
- This serves to appropriately reduce the interest revenue reported by the reporting government when it receives the full amount of interest collected on the next interest payment date for that investment
Number of Checking Accounts

- Best practice is to limit the number of checking accounts
- Best practice is to use a single checking account for all funds, component units, and related entities that are managed by the entity
- Legal requirements may call for a separate “account” for the cash of that program or fund – typically these requirements are satisfied by means of the separate “fund” accounting that government systems establish for pooled cash
General Ledger vs. Subsidiary Ledger

• Each fund in the entity’s accounting system (general ledger) may use one account (“cash”) to represent that fund’s position in the entity-wide cash and investment pool
• Typically, a separate set of records is maintained for the entity-wide cash and investment pool that identifies all of the bank accounts and individual investments that are contained in the pool (including the entity’s investment in LAIF, CAMP or the county investment pool)
• Those records can be in the form of a:
  – Report provided by your investment management firm
  – Purchased investment software that provides for reporting of the portfolio
  – Excel spreadsheets that keep track of each bank account and investment in the pool

[Note - A single pool can be used for all component units and entities that are managed by that entity]
• What is a General Ledger Cash Reconciliation:
  1. Prepare a listing that totals up each fund’s cash balance as of a given date (e.g., month end) – from the general ledger reports produced by the entity’s accounting system
  2. Prepare a listing that totals up the balance of each bank account (adjusted for recorded items not yet cleared) and investment balances held as of that date – from the month end bank/custodian statements
  3. Ensure that the two listings are in agreement (investigate differences)

[Note – internal control objectives are maximized when the amounts for step 2 are pulled from independent custodian statements (rather than statements from your investment manager)]
General Ledger Cash Reconciliation

The amounts pulled from monthly custodian statements in step 2 must be comparable with the amounts recognized in the general ledger:

- If discounts are not amortized and fair values are only adjusted at year end, then the amounts pulled from the monthly custodian statement would be **cost**

- If fair value adjustments are made in the general ledger every month, then the amounts pulled from the monthly custodian statement would be **fair value**

- If discounts are amortized in the general ledger each month (and fair value adjustments not made until year end), then the amounts pulled from the monthly custodian statement would be **cost plus accumulated amortization of discounts** (i.e., accumulated amortization from the entity’s amortization worksheets would be a reconciling item in the reconciliation process)
General Ledger Cash Reconciliation

- Bank Reconciliation vs. General Ledger Cash Reconciliation
- General ledger cash reconciliation may be the most important accounting control for an entity
- It is best for the general ledger cash reconciliation to be done on a monthly basis and in a timely manner (within 30-60 days of month end)
Allocation to Funds

- GAAP requires that investment earnings be allocated to the various funds represented in the pool.
- Predominant practice is for such allocation to be done on a monthly or quarterly basis using the ending cash balances of each fund.
GAAP allows a variety of methodologies to deal with funds with negative cash balances.

Some local governments exclude funds with negative cash balances in the basis for the allocation.

Under that methodology, only funds with positive cash balances would be represented on the spreadsheet that forms the basis for the allocation.

The total of the spreadsheet would be the total of only the positive cash balances.
Allocation to Funds – Effect of Negative Cash Balances

• Some local governments include negative cash balances in the allocation spreadsheet.

• In those cases, those funds are assigned “negative” interest revenue

• This is analogous to a charge to that fund for its interfund borrowing (such a charge is neither required, nor prohibited by GAAP)

• For agencies that use that methodology, they should be careful to avoid entries to grant funds that could be questioned by federal agencies as substantively representing a charge for unallowable interest expense.
• Some funds are required by law to receive interest earned by their cash balances
• For other funds, there is no legal requirement for that fund to be allocated interest
• Some agencies allocate interest to all funds and then, for those funds that are not legally required to receive interest, the agency makes a separate “transfer out” entry to transfer that interest to the General Fund
Allocation to Funds

- Other agencies, in their interest allocation spreadsheet, include in the amount shown on the spreadsheet for the General Fund all of the cash balances of those funds for which there is no legal requirement to be allocated interest.
- This effectively assigns such interest to the General Fund without the recording of a transfer in and a transfer out.
- For certain states (including California), this is an acceptable option.
GASB Cod. I50.113 – “Often, income from investments associated with one fund is assigned to another fund because of legal or contractual provisions. In that situation, the accounting treatment should be based on the specific language of the legal or contractual provisions.”
Allocation to Funds

53647 (a) Interest on all money deposited belongs to, and shall be paid quarterly into the general fund of, the local agency represented by the officer making the deposit, unless otherwise directed by law.

(b) Notwithstanding the provisions of subdivision (a), and except as otherwise directed by law, if the governing body of the local agency represented by the officer making the deposit so directs, such interest shall be paid to the fund which contains the principal on which the interest accrued.

[Note that the assignment process described above is an option, not a requirement]
Allocation to Funds

- Amortization entries and fair value entries need to be allocated to each fund in the pool.
- Can be included in the same allocation spreadsheet as is used for interest revenue.
- Typically the allocation is based upon the ending cash balance of each fund as reported in the general ledger.
- Some entities use separate accounts in their revenue ledger to report:
  - Interest revenue
  - Amortization of discount
  - Fair value adjustments
Other Cash Accounts

• Some bank accounts/investments are associated with specific funds
• Example – bond trustee accounts (“cash with fiscal agent”)
• These “fund specific” bank accounts should be excluded from the entity-wide pool
• A separate asset account in the general ledger should be used to reflect the balance of the account
• That fund’s separate asset account (in the general ledger) should be reconciled on a monthly basis to the statement provided by the bank/custodian
Segregation of Duties

• Internal control objectives are maximized when different persons perform the following functions:
  – Execution of investment transactions
  – Maintenance of investment subsidiary ledger (tracking of investments, receipt of trade tickets and custodian statements, and preparation of Treasurer’s reports)
  – Reconciliation of general ledger cash balances
Controls Over Bank Transfers

- Initiator of the transfer
- Approver of the transfer
- Bank enforcement of this protocol
- Use of tokens to ensure identity of approver (random passwords that change constantly)
- Establishment of templates that prescribe the bank accounts involved in transfers
- Requirement of two persons to change template
- During the bank reconciliation process, the reconciler should verify that the required approval was obtained for each transfer
Delivery Versus Payment (DVP)

- The simultaneous exchange of cash for a security
- Protects both parties to the transaction
Security Custody

- Federal Reserve Book Entry - Security ownership recorded through electronic accounts
  - Treasury Obligations
  - Federal Agencies
  - Repurchase Agreement Collateral
- Depository Trust Company (DTC) - A clearing agency which provides book entry settlement service
  - Commercial Paper
  - Corporate Notes/Bonds
  - Municipal Bonds
- Physical - Security ownership documented by a paper receipt or certificate
  - Bankers’ Acceptances (some)
  - Certificates of Deposit
Use of Independent Investment Custodian

- History of issues associated with failure to use independent custodians
- Internal controls are maximized when different parties are used for each of the following roles:
  - Investment advisor/manager
  - Broker/dealer used to execute the transactions
  - Custodian – the institution holding the investment on behalf of the owner
Best Practices With Respect to Use of Investment Custodian

- The custodian will only release securities with the explicit direct authorization of the local government (not the broker-dealer) on a transaction by transaction basis.
- The custodian provides directly to the local government a confirmation of each purchase or sale as they occur.
- The custodian provides directly to the local government a monthly statement of investments held on behalf of the local government.
- There is a written agreement between the local government and the custodian that clearly address the above issues.
Sample Statement
<table>
<thead>
<tr>
<th>Description</th>
<th>CUSIP</th>
<th>Par</th>
<th>S &amp; P</th>
<th>Moody’s</th>
<th>Trade Date</th>
<th>Settlement Date</th>
<th>Original Cost</th>
<th>YTM at Cost</th>
<th>Amortized Cost</th>
<th>YTM at Market</th>
<th>Fair Value</th>
<th>Accrued Interest</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Commercial Paper</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UBS FINANCE DELAWARE LLC</td>
<td>90262CX36</td>
<td>13,500,000</td>
<td>A-1</td>
<td>P-1</td>
<td>4/3/2013</td>
<td>4/4/2013</td>
<td>13,478,843</td>
<td>0.31%</td>
<td>13,496,280</td>
<td>0.13%</td>
<td>13,498,407</td>
<td>0</td>
</tr>
<tr>
<td>RABOBANK USA FIN CORP</td>
<td>74977KXF1</td>
<td>4,500,000</td>
<td>A-1+</td>
<td>P-1</td>
<td>4/15/2013</td>
<td>4/15/2013</td>
<td>4,494,739</td>
<td>0.23%</td>
<td>4,998,735</td>
<td>0.12%</td>
<td>4,499,307</td>
<td>0</td>
</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td>18,000,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Corporate Notes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GENERAL ELECTRIC CO NOTES</td>
<td>36960BE2</td>
<td>4,400,000</td>
<td>AA+</td>
<td>Aa3</td>
<td>10/1/2012</td>
<td>10/9/2012</td>
<td>4,398,812</td>
<td>0.86%</td>
<td>4,399,163</td>
<td>0.85%</td>
<td>4,399,683</td>
<td>14,752</td>
</tr>
<tr>
<td>TOYOTA MOTOR CREDIT CORP</td>
<td>89233P4R4</td>
<td>7,000,000</td>
<td>AA-</td>
<td>Aa3</td>
<td>3/1/2013</td>
<td>3/6/2013</td>
<td>7,403,830</td>
<td>0.75%</td>
<td>7,335,496</td>
<td>1.00%</td>
<td>7,292,453</td>
<td>27,222</td>
</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td>11,400,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>U. S. Treasury Notes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US TREASURY NOTES 2.125% 12/31/2015</td>
<td>912828PM6</td>
<td>1,530,000</td>
<td>AA+</td>
<td>Aaa</td>
<td>12/18/2012</td>
<td>12/19/2012</td>
<td>1,610,265</td>
<td>0.38%</td>
<td>1,591,718</td>
<td>0.50%</td>
<td>1,587,375</td>
<td>5,566</td>
</tr>
<tr>
<td>US TREASURY NOTES 0.375% 01/15/2016</td>
<td>912828UG3</td>
<td>4,220,000</td>
<td>AA+</td>
<td>Aaa</td>
<td>1/30/2013</td>
<td>2/4/2013</td>
<td>4,214,230</td>
<td>0.42%</td>
<td>4,215,353</td>
<td>0.52%</td>
<td>425,162</td>
<td>2,064</td>
</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td>5,750,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td>35,150,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* For illustrative purposes only.
GASB 31
Why Was GASB 31 Issued?

- Issued in 1997
- Prior to issuance, investments reported at cost unless there was a **permanent** decline in market value (unexpected recoveries of market value were not permitted to be recognized)
- GASB had been looking at changing this for a number of years
- Events in 1994 (including the Orange County bankruptcy) caused the GASB to look at this issue more seriously
- Post 1997, government investments are generally reported at fair value
- Lets the reader know the effect on the government if the government was forced to liquidate all of its investments as of the date of the financial statements
Significant Changes

• Public entities should report investments at fair value on the balance sheet
• The change in fair value from year to year should be recognized in the operating statement
• Applicable to investments which are a security or other asset acquired primarily for the purpose of obtaining income
  – Interest earning investment contracts (with some exceptions)
  – External investment pools
  – Mutual funds
  – Debt securities
  – Equity securities
Investment in Local Government Pool

- A local government’s investment in LAIF, CAMP (or a county pool) must also be fair valued
- This would be based upon a proportionate assignment of the total fair value of all of the investments in the pool as a percentage of the total cost (carrying value) of the pool
- For LAIF, this information can be obtained at: http://www.treasurer.ca.gov/pmia-laif/reports/valuation.asp
# Pooled Money Investment Account

## Market Valuation

**6/30/2013**

<table>
<thead>
<tr>
<th>Description</th>
<th>Carrying Cost Plus Accrued Interest</th>
<th>Purch.</th>
<th>Amortized Cost</th>
<th>Fair Value</th>
<th>Accrued Interest</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>United States Treasury:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bills</td>
<td>$18,019,781,458.84</td>
<td>$18,031,788,345.99</td>
<td>$18,035,146,300.00</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>Notes</td>
<td>$17,866,551,757.96</td>
<td>$17,864,039,275.14</td>
<td>$17,866,601,500.00</td>
<td>$14,141,398.00</td>
<td></td>
</tr>
<tr>
<td><strong>Federal Agency:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SBA</td>
<td>$510,792,442.52</td>
<td>$510,792,442.52</td>
<td>$510,253,568.70</td>
<td>$517,567.05</td>
<td></td>
</tr>
<tr>
<td>MBS-REMICs</td>
<td>$192,640,776.24</td>
<td>$192,640,776.24</td>
<td>$208,763,614.81</td>
<td>$921,014.69</td>
<td></td>
</tr>
<tr>
<td>Debentures</td>
<td>$1,229,014,505.38</td>
<td>$1,227,601,588.70</td>
<td>$1,225,462,000.00</td>
<td>$4,859,598.00</td>
<td></td>
</tr>
<tr>
<td>Debentures FR</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Discount Notes</td>
<td>$2,248,563,445.13</td>
<td>$2,248,994,695.02</td>
<td>$2,249,228,500.00</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>GNMA</td>
<td>$451.55</td>
<td>$451.55</td>
<td>$454.80</td>
<td>$4.70</td>
<td></td>
</tr>
<tr>
<td>IBRD Debenture</td>
<td>$450,053,540.85</td>
<td>$450,053,540.85</td>
<td>$450,282,500.00</td>
<td>$107,637.50</td>
<td></td>
</tr>
<tr>
<td>IBRD Deb FR</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>CDs and YCDs FR</td>
<td>$400,000,000.00</td>
<td>$400,000,000.00</td>
<td>$400,000,000.00</td>
<td>$252,251.67</td>
<td></td>
</tr>
<tr>
<td>Bank Notes</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>CDs and YCDs</td>
<td>$8,870,129,024.17</td>
<td>$8,870,011,579.74</td>
<td>$8,866,790,803.69</td>
<td>$2,820,216.67</td>
<td></td>
</tr>
<tr>
<td>Commercial Paper</td>
<td>$4,253,842,581.96</td>
<td>$4,254,541,430.57</td>
<td>$4,254,012,847.23</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td><strong>Corporate:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bonds FR</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bonds</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Repurchase Agreements</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Reverse Repurchase</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Time Deposits</td>
<td>$4,474,640,000.00</td>
<td>$4,474,640,000.00</td>
<td>$4,474,640,000.00</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>AB 55 &amp; GF Loans</td>
<td>$267,302,443.82</td>
<td>$267,302,443.82</td>
<td>$267,302,443.82</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td>$58,803,312,428.42</td>
<td>$58,812,406,670.14</td>
<td>$58,828,474,533.08</td>
<td>$23,615,688.28</td>
<td></td>
</tr>
</tbody>
</table>

**Fair Value Including Accrued Interest:** $58,852,094,221.33

Repurchase Agreements, Time Deposits, AB 55 & General Fund loans, and Reverse Repurchase agreements are carried at portfolio book value (carrying cost).

The value of each participating dollar equals the fair value divided by the amortized cost (1.0000273207). As an example: if an agency has an account balance of $20,000,000.00, then the agency would report its participation in the LAIF valued at $20,005,464.14 or $20,000,000.00 x 1.0000273207.
Exceptions

• Highly liquid short-term securities that at the time of purchase had less than one year to maturity. These securities may be reported at amortized cost (unless significantly impaired by the credit standing of the issuer).  

• Nonparticipating contracts such as non-negotiable certificates of deposit and certain investment agreements may be reported at cost (unless significantly impaired by the credit standing of the issuer) 
  – Nonparticipating contracts generally cannot be negotiated, transferred, sold, or redeemed prior to maturity (or if redeemed, their redemption value ignores their fair value at that time)
Exceptions (continued)

- External pools that are 2a-7 like may use amortized cost
- Real estate held for investment purposes
- Investments in joint ventures accounted for under the equity method
- Investments in common stock (such as that of a water company) that were acquired to enhance government service
- Loans made to other funds or to private parties
Bid Price or Asked Price

GASB *CIG 6.11.7. Q—A bid price represents the price a willing buyer will pay; an asked price represents the price the seller would like to receive. If actual sales prices are not available when determining fair value, should bid or asked prices be used?

A—Statement 31 does not take a position on this issue. Practice generally is to use bid prices, because they are the amounts at which transactions presumably will be completed.

* The acronym CIG represents refers to the Comprehensive Implementation Guide published by GASB
Trade Date or Settlement Date

GASB CIG 6.28.1. Q—Should investment transactions be accounted for based on the trade date (the date the order to buy or sell the investment is placed) or the settlement date (the date that the cash and investment instrument are exchanged)?

A—Investment transactions should be accounted for based on the **trade date**. The trade date is the date on which the transaction occurred and is the date the government is exposed to (or released from) the rights and obligations of the ownership of the instrument.

Note – This becomes important for transactions that occur close to year end
Risks to Portfolios

“To begin with, your portfolio is too conservative.”
Basis Points

1 Basis Point = 1 1/100 of 1%

100 Basis Points = 1.00%

1/2% = 50 Basis Points

The difference between 4.90% and 4.95% is 5 basis points
Volatility

• The effect of interest rate changes on the price/return of a security or portfolio

• Interest rates and portfolio value are **inversely** related (normally)
## Relationship Between Rates and Market Values

<table>
<thead>
<tr>
<th>Investment Choices</th>
<th>Amount you Receive at Maturity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Spend</td>
</tr>
<tr>
<td>Today</td>
<td>$1 mm</td>
</tr>
<tr>
<td>Tomorrow</td>
<td>$1 mm</td>
</tr>
<tr>
<td>Tomorrow</td>
<td>$ ????</td>
</tr>
</tbody>
</table>

How much would you pay for this security?
### Impact of Interest Rate Movements on Value

- Market value of longer duration portfolios are more impacted by a change in interest rates than shorter ones.

<table>
<thead>
<tr>
<th>Portfolio Duration</th>
<th>Simultaneous Change in Interest Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(2.00%)</td>
</tr>
<tr>
<td>1.00</td>
<td>200,000</td>
</tr>
<tr>
<td>2.00</td>
<td>400,000</td>
</tr>
<tr>
<td>4.00</td>
<td>800,000</td>
</tr>
</tbody>
</table>

*Portfolio duration measured in years. Assumes instantaneous shock.*
Liquidity Risk

- Inability to sell portfolio holdings at a competitive price
  - Substantial penalty for earlier withdrawal
  - Capital losses if interest rates have gone up
  - Fire sale prices
- Long period to maturity
Credit Risk

- Risk of default or decline in security value due to conditions outside investors control
  - Bankruptcy
  - Rating agency downgrades
  - Regulatory changes

U.S. Treasury Obligations
U.S. Government Agencies and Instrumentalities
Municipal Obligations (State, County, City)
Corporate Obligations (BAs, CP, CDs, Notes)

Low Credit Risk High
Monitoring Credit Risk

- Nationally Recognized Statistical Rating Organizations ("NRSRO")
  - Designated by the SEC

- Largest and most active NRSROs
  - Standard & Poor's
  - Moody's Investors Service
  - Fitch Ratings
<table>
<thead>
<tr>
<th>S&amp;P</th>
<th>Moody’s</th>
<th>Explanation of Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAA</td>
<td>Aaa</td>
<td>High quality. Smallest degree of investment risk</td>
</tr>
<tr>
<td>AA</td>
<td>Aa</td>
<td>High quality. Differs only slightly from highest-rated issues</td>
</tr>
<tr>
<td>A</td>
<td>A</td>
<td>Adequate capacity to pay interest and repay principal</td>
</tr>
<tr>
<td>BBB</td>
<td>Baa</td>
<td>More susceptible to adverse effects of changes in economic conditions</td>
</tr>
<tr>
<td>BB</td>
<td>Ba</td>
<td>Has speculative elements; future not considered to be well-assured</td>
</tr>
<tr>
<td>B</td>
<td>B</td>
<td>Generally lack characteristics of desirable investment</td>
</tr>
<tr>
<td>CCC</td>
<td>Caa</td>
<td>Poor standing. Vulnerability to default</td>
</tr>
<tr>
<td>C</td>
<td>C</td>
<td>Extremely poor prospect</td>
</tr>
<tr>
<td>D</td>
<td>D</td>
<td>In default</td>
</tr>
</tbody>
</table>
### Short-Term and Long-Term Ratings

<table>
<thead>
<tr>
<th>Short-Term Rating</th>
<th>Long-Term Sr. Unsecured Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prime-1 (P-1)</td>
<td>Aaa</td>
</tr>
<tr>
<td></td>
<td>Aa1</td>
</tr>
<tr>
<td></td>
<td>Aa2</td>
</tr>
<tr>
<td></td>
<td>Aa3</td>
</tr>
<tr>
<td>Prime-2 (P-2)</td>
<td>A1</td>
</tr>
<tr>
<td></td>
<td>A2</td>
</tr>
<tr>
<td></td>
<td>A3</td>
</tr>
<tr>
<td>Prime-3 (P-3)</td>
<td>Baa1</td>
</tr>
<tr>
<td></td>
<td>Baa2</td>
</tr>
<tr>
<td></td>
<td>Baa3</td>
</tr>
<tr>
<td>Speculative Grade</td>
<td>Ba1</td>
</tr>
<tr>
<td></td>
<td>Ba2</td>
</tr>
<tr>
<td></td>
<td>Ba3</td>
</tr>
<tr>
<td></td>
<td>B1</td>
</tr>
<tr>
<td></td>
<td>B2</td>
</tr>
<tr>
<td></td>
<td>B3</td>
</tr>
<tr>
<td></td>
<td>Caa</td>
</tr>
<tr>
<td></td>
<td>Ca</td>
</tr>
<tr>
<td></td>
<td>C</td>
</tr>
</tbody>
</table>

#### Correlation of CP Ratings with Debt Ratings

- **AAA**
- **AA+**
- **AA**
- **AA-**
- **A+**
- **A**
- **A-**
- **BBB+**
- **BBB**
- **BBB-**
- **BB+**
- **BB**
- **BB-**

**Source:** Moody’s Investors Service, Commercial Paper Default and Rating Transitions, 1972-1995

- **AAA**
- **AA+**
- **AA**
- **AA-**
- **A+**
- **A**
- **A-**
- **BBB+**
- **BBB**
- **BBB-**
- **BB+**
- **BB**
- **BB-**

**Source:** Standard & Poor’s Commercial Paper Guide

86
Reinvestment Risk

• The risk that a security’s cash flow will be reinvested at a lower rate of return than what is being earned by the security

• Exposure to reinvestment risk
  – Callable securities
  – Mortgage backed securities
  – Securities with larger earlier cash flows (high coupon bonds)
Developing an Investment Strategy
Basic Considerations

- Safety of principal
- Securities and maturities permitted by California Statutes
- Securities and maturities permitted by your investment policy
- Cash flow needs
- Diversification
- Risk tolerance
- Capabilities of investment staff
- Relative value of securities being purchased
Average Maturity

- Average maturity determines investment performance
- To increase returns:
  - extend maturities
  - increase credit risk
  - reduce liquidity
Benchmark Volatility

Comparison of Annualized Quarterly Returns
June 2003 - June 2013

- 3-Month Treasury Bill
- 1-3 Year Treasury Index
- 1-5 Year Treasury Index
Portfolio Structuring

- Many ways to achieve a specific target maturity
- The optimal structure will depend on the shape of the yield curve

**Bullet Barbell Ladder**

- 100% 75% 50% 25%
- 1 Year 2 Year

**Barbell**

- 100% 75% 50% 25%
- 1 Year 2 Year

**Ladder**

- 100% 75% 50% 25%
- 1 Year 2 Year
The Market

Current Market *

<table>
<thead>
<tr>
<th>Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overnight</td>
<td>0.07%</td>
</tr>
<tr>
<td>3 Month Agency</td>
<td>0.06%</td>
</tr>
<tr>
<td>6 Month Agency</td>
<td>0.10%</td>
</tr>
<tr>
<td>1 Year Agency</td>
<td>0.17%</td>
</tr>
<tr>
<td>2 Year Agency</td>
<td>0.33%</td>
</tr>
<tr>
<td>3 Year Agency</td>
<td>0.80%</td>
</tr>
<tr>
<td>5 Year Agency</td>
<td>1.76%</td>
</tr>
</tbody>
</table>
Sample Portfolios

• Structure a portfolio of $14,000,000
• Will need $5,000,000 in the next 6 months
• A – Bullet in 6 months
• B – Barbell $7,000,000 overnight and $7,000,000 in 5 years
• C – Ladder
• B – Bullet in 3 years

What happens to each investment strategy in the 6 scenarios?

Is there one that always does the better?
"I was floating in a tunnel toward a very bright light and then a voice told me I had to go back and finish listening to the presentation."
Background

- GASB previously addressed risk disclosure in Statement No. 3

- Statement No. 3 focused on credit risk including custodial credit risk

- GASB 40 Objectives:
  - Update custodial credit risk disclosure
  - Establish comprehensive disclosure requirements for other risks
Level of Detail

- All GASB 40 disclosures must be broken down at least by investment type.
- For GASB 40 purposes, an investment in an external investment pool (County pool, LAIF, CAMP, etc.) is a single investment.
- Don’t have to “look through” the pool to give disclosures for the various investment types contained in the pool.
- Generally, if a major fund has its own investments (such as those held in a separate fiscal agent account associated solely with that fund) and those investments have risks that are materially different than the risks of that agency’s entire portfolio, additional disclosures may be required.
Investment Policy and State Law

- Allowable investments (and any limitations) under entity’s investment policy must be disclosed
- Differences between investment policy and requirements of state law should be disclosed
- If government’s policy is to simply comply with state investment statues, relevant portions of statue relating to risk should be disclosed
- Violations of investment policy or state law must also be disclosed
- Best practice is for monthly Treasurer’s Report to provide information as to compliance with these requirements (e.g., identifying the percentage of the portfolio that is held in each category of investments that is subject to limitation)
- Prospectuses should also be retained for examination by auditors (for money market funds, mutual funds, and any unusual investments)
- Bond requirements for investment of bond proceeds should be disclosed
Credit Risk

- **Credit risk** — the risk that the issuer will not fulfill its obligation to the holder of the investment
- Disclose any state laws or policy requirements associated with this risk (i.e., where a minimum rating has been stipulated)
- If no requirement for a minimum rating, so state
Credit Risk

• Only need to disclose ratings as of end of year
• Ratings by a nationally recognized statistical rating organization (NRSRO)
  – If split rating, use lowest (or show both)
  – By investment type or by credit rating
• Securities explicitly guaranteed by the U. S. government are not considered to have credit risk
• Disclose credit quality ratings of external investment pools, money market funds or other pooled investments
• Identify unrated investments
• Retain for auditor’s review evidence of rating as of year end
Custodial Credit Risk - Deposits

- **Deposits** are checking accounts, savings accounts, and traditional non-negotiable certificates of deposit, etc.
- If a bank account (or CD) is not collateralized, disclose the dollar amounts in excess of FDIC insurance limits.
- Retain evidence of collateralization for auditors.
Custodial Credit Risk - Investments

- Exception based
- Disclose investments that are uninsured and not registered in the government’s name that are held by the:
  - Counterparty (i.e., the broker-dealer), or
  - Counterparty’s trust department or agent, but not in the government’s name
What Does “In the Government’s Name” Mean

Two criteria must be met:

1. The holder of the securities must hold them in an account for that institution’s customers (i.e., segregated from the institution’s own investments) – GASB considers this requirement to be met if the securities are held in a “street name” or “nominee name” account.

2. The holder must have records that identify the local government as the owner of the security (rather than tracking the securities by broker-dealer).
Custodial Credit Risk

• Best practice is for investments to be held by an independent custodian other than the broker-dealer that was used to purchase the investment
• No disclosure for external investment pools and money market mutual funds
• Includes collateral on repos and securities lending
Concentration of Credit Risk

- Any one issuer that represents 5 percent or more of the entity’s total portfolio
- If a major fund has its own investments, then this rule is applied at the fund level
- Exclude:
  - Assets issued or explicitly guaranteed by the U. S. Government
  - Mutual funds
  - External investment pools (CAMP, LAIF, etc.)
Interest Rate Risk

- *Interest rate risk*—the risk that changes in interest rates demanded by the market will adversely affect the fair value of an investment.

- One of these methods must be used:
  - Specific identification
  - Segmented time distribution
  - Weighted average maturity
  - Simulation model
  - Duration
Interest Rate Risk

- Method used should be consistent with how that local government manages interest rate risk
- Can use different methods for different investments
- Disclose assumptions made for calculation purposes
- Similar investments may be aggregated
- Disclosure detail should be broken down by investment type
- Investments with values that are highly sensitive to changes in market interest rates must be described in the notes
Examples of Highly Sensitive Investment

- **Auction rate securities**—securities whose interest rates are set by frequent remarketing
- **Coupon multipliers**—a variable rate instrument where the interest rate is expressed as a *multiple* of an underlying index.
- **Variable rates with floors, caps, and collars**
- **Securities with callable step-up features**
- **Range notes**—interest rates depend on whether or not the benchmark index falls within a pre-determined range.
- **Inverse floaters**—interest rate moves in the opposite direction of the underlying index
- **Mortgage-pass through securities**—cash flows determined by the mortgage payments of an underlying pool of mortgages
Highly Sensitive Investments

• Retain for auditors documentation of the details of investment characteristics (descriptions on investment statements and trade tickets do not necessarily provide the level of detail needed to be examined by the auditors)

• For this reason, entities often retain for auditors’ review Bloomberg print shots (obtained from the broker) that display all of the characteristics necessary for the auditors to evaluate whether or not the investment has a fair value that is highly sensitive to changes in market interest rates
Specific Identification

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
<th>Maturity Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Treasury note</td>
<td>$6,000,000</td>
<td>November 6, 2013</td>
</tr>
<tr>
<td>U.S. Treasury bond</td>
<td>$3,000,000</td>
<td>October 4, 2015</td>
</tr>
<tr>
<td>U.S. Treasury strip</td>
<td>$2,000,000</td>
<td>March 7, 2014</td>
</tr>
<tr>
<td>Federal Farm Credit Note</td>
<td>$35,000,000</td>
<td>December 31, 2016</td>
</tr>
<tr>
<td>ABC corporate note</td>
<td>$5,000,000</td>
<td>February 18, 2015</td>
</tr>
<tr>
<td>LEF commercial paper</td>
<td>$3,000,000</td>
<td>September 15, 2014</td>
</tr>
<tr>
<td>Bankers acceptances</td>
<td>$2,000,000</td>
<td>September 6, 2014</td>
</tr>
<tr>
<td>GNMA</td>
<td>$3,000,000</td>
<td>May 17, 2017</td>
</tr>
<tr>
<td>State investment pool</td>
<td>$15,000,000</td>
<td>1.47 year average</td>
</tr>
<tr>
<td>Held by bond trustee:</td>
<td></td>
<td>.13 year average</td>
</tr>
<tr>
<td>Money market funds</td>
<td>$500,000</td>
<td>October 1, 2022</td>
</tr>
<tr>
<td>Investment contracts</td>
<td>$1,000,000</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$75,500,000</td>
<td></td>
</tr>
</tbody>
</table>
## Segmented Time Distribution

<table>
<thead>
<tr>
<th>Investment Type</th>
<th>12 Months Or Less</th>
<th>13 to 24 Months</th>
<th>25-60 Months</th>
<th>More Than 60 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Treasury notes</td>
<td>$6,000,000</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>U.S. Treasury bonds</td>
<td>3,000,000</td>
<td>-</td>
<td>3,000,000</td>
<td>-</td>
</tr>
<tr>
<td>U.S. Treasury strips</td>
<td>2,000,000</td>
<td>-</td>
<td>2,000,000</td>
<td>-</td>
</tr>
<tr>
<td>Federal agency securities</td>
<td>35,000,000</td>
<td>5,000,000</td>
<td>8,000,000</td>
<td>-</td>
</tr>
<tr>
<td>Corporate medium term notes</td>
<td>5,000,000</td>
<td>5,000,000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>3,000,000</td>
<td>3,000,000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bankers acceptances</td>
<td>2,000,000</td>
<td>2,000,000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mortgage-backed securities</td>
<td>3,000,000</td>
<td>-</td>
<td>3,000,000</td>
<td>-</td>
</tr>
<tr>
<td>State investment pool</td>
<td>15,000,000</td>
<td>15,000,000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Held by bond trustee:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Money market funds</td>
<td>500,000</td>
<td>500,000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Investment contracts</td>
<td>1,000,000</td>
<td>-</td>
<td>-</td>
<td>1,000,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$75,500,000</strong></td>
<td><strong>31,500,000</strong></td>
<td><strong>27,000,000</strong></td>
<td><strong>16,000,000</strong></td>
</tr>
</tbody>
</table>
### Weighted Average Maturity

<table>
<thead>
<tr>
<th>Investment Type</th>
<th>Weighted Average Days to Maturity</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Treasury notes</td>
<td>852</td>
</tr>
<tr>
<td>U.S. Treasury bonds</td>
<td>1,642</td>
</tr>
<tr>
<td>Federal agency securities</td>
<td>947</td>
</tr>
<tr>
<td>Corporate medium term notes</td>
<td>1,460</td>
</tr>
<tr>
<td>Commercial paper</td>
<td>87</td>
</tr>
<tr>
<td>Mortgage backed securities</td>
<td>2,012</td>
</tr>
</tbody>
</table>
Simulation Model

- *Simulation model*—calculates effect on investment fair values for hypothetical (negative) changes in interest rates.
- If this is not being used during the year to monitor interest rate risk in your portfolio, you probably should not use this method for the cash and investment note.
• *Duration*—calculates in years or months the time to elapse for a group of investments to become due and payable (weighted for the *present value* of investment cash flows).

• If this is not being used during the year to monitor interest rate risk in your portfolio, you probably should not use this method for the cash and investment note.
Duration

- Duration shows that price volatility is influenced by:
  - Timing of cash flows
  - Influenced by coupon rate and yield to maturity
- The higher the duration, the greater the price volatility for changes in interest rates

<table>
<thead>
<tr>
<th>Merrill Lynch Index</th>
<th>Duration</th>
<th>Average Annual Return</th>
<th>Cumulative Value of $100,000,000</th>
<th>Quarters With Negative Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Month Treasury Bill</td>
<td>0.23 Years</td>
<td>1.67%</td>
<td>$118,061,183</td>
<td>0 out of 40</td>
</tr>
<tr>
<td>6-Month Treasury Bill</td>
<td>0.48 Years</td>
<td>1.97%</td>
<td>$121,532,948</td>
<td>0 out of 40</td>
</tr>
<tr>
<td>1-3 yr Agency</td>
<td>1.77 Years</td>
<td>2.83%</td>
<td>$132,189,449</td>
<td>5 out of 40</td>
</tr>
<tr>
<td>1-5 yr Agency</td>
<td>2.48 Years</td>
<td>3.18%</td>
<td>$136,813,297</td>
<td>6 out of 40</td>
</tr>
<tr>
<td>3-5 yr Agency</td>
<td>3.57 Years</td>
<td>4.06%</td>
<td>$148,943,300</td>
<td>7 out of 40</td>
</tr>
<tr>
<td>5-7 yr Agency</td>
<td>5.33 Years</td>
<td>5.10%</td>
<td>$164,477,339</td>
<td>12 out of 40</td>
</tr>
<tr>
<td>1-3 yr TSY/Agency</td>
<td>1.89 Years</td>
<td>2.64%</td>
<td>$129,840,427</td>
<td>6 out of 40</td>
</tr>
</tbody>
</table>
Foreign Currency Risk

• *Foreign currency risk*—risk that changes in foreign exchange rates will adversely affect the fair value of an investment

• Only applies to investments that are denominated in foreign currencies.

• Can be satisfied by listing the *specific investments* showing amount, maturity, and identification of the foreign currency
Total Return
• GIPS stands for Global Investment Performance Standards
  – The CFA Institute sponsored and funded the GIPS Committee
  – The first GIPS were published in April 1999, the second edition of the GIPS was published in 2005, and the 2010 edition of the GIPS standards is the most recent edition.
  – The standards will be reviewed and updated every 5 years
GIPS

• Created and funded by CFA Institute
• Provides an ethical framework for the calculation and presentation of performance history
• Voluntary (not mandated by SEC or any other body)
• Gives clients and prospects the ability to fairly compare performance of investment managers
• Standardized framework for presentation
• Outlines necessary internal controls
Calculation Methodology Requirements

- Total returns must be used
- Time-Weighted Rates of return must be used
- Composite returns must be asset weighted
Calculation Methodology

The Modified-Dietz method of calculation is defined as follows:

Rate of Return = \( \frac{(EMV - BMV - NCF)}{(BMV + WCF)} \)

where:

- **EMV** is the market value including accrued interest at the end of period \( t_0 \)
- **BMV** is the market value including accrued interest at the end of period \( t_{-1} \)
- **NCF** is the net cash flow during the period
- **WCF** is the daily weighted cash flow during the period
  (sum of each individual cash inflow times the number of days it was invested and each individual cash outflow times the number of days it was not invested)

\[ WCF = CF_d \times \frac{(Dm-d+1)}{Dm} \]

where:

- **CF_d** is the net cash flow for the day
- **d** is the day of the month
- **Dm** is the number of days in the month
Calculation Example Period #1

- Beginning value of $1,000,000
- Client withdraws $45,000 on the 15th of the month
- Ending value of $950,000
- Weighted Cash Flow = 45,000 * ((30 – 15 + 1)/30) = 24,000
- Net Cash Flow = ($45,000)

\[
\frac{(950,000 – 1,000,000 – 45,000)}{(1,000,000 + 24,500)} = -5,000 \div 1,024,500 = \text{-0.49%}
\]

Rate of Return = \(\frac{\text{EMV} – \text{BMV} – \text{NCF}}{\text{BMV} + \text{WCF}}\)
Calculation Example Period #2

- Beginning value of $950,000
- Client deposits $55,000 on the 10th of the month
- Ending value of $1,007,500
- Weighted Cash Flow = $55,000 * ((31 – 10 + 1)/31) = $39,032
- Net Cash Flow = $55,000

\[
(1,007,500 - 950,000 - 55,000) \div (950,000 + 39,032) = \\
2,500 \div 989,032 = 0.25\%
\]

Rate of Return = \(\frac{\text{EMV} - \text{BMV} - \text{NCF}}{\text{BMV} + \text{WCF}}\)
Geometrically Linking Returns

- Year 1 return = -1.49%
- Year 2 return = +2.35%
- \( (((1 + \text{-1.49\%}) \times (1 + 2.35\%))^{(1/2)}) - 1 = \)
- \( ((0.9851 \times 1.0235)^{(1/2)}) - 1 = \)
- \( (1.00825^{(1/2)}) - 1 = \)
- \( 0.99879 - 1 = 0.41\% \)
Exposure Draft on Fair Value
What Will This Statement Do

• Clarify how fair value should be measured for those assets (such as investments) and liabilities (such as derivatives that are in a liability position) that are currently required to be reported at fair value

• This statement will not expand the use of fair value reporting to other liabilities (other than where currently required)

• This statement will not expand the use of fair value reporting to other assets (other than where currently required)

• However, the definition of investments subject to fair value will be expanded somewhat
Definition of an **investment** is expanded

- A security or other asset that a government holds primarily for the purpose of income or profit
- Ability to generate cash
- To be sold to generate cash
- Procure services for the citizenry (land and land rights, natural resources, real estate, etc.)
• Examples of expanded definition of investment:
  – Real estate held for investment purposes
  – Intangible assets held for investment purposes
  – Land rights held for investment purposes (such as oil and gas rights)
  – Natural resources held for investment purposes
  – Alternative investments
  – Stock warrants and stock rights
  – Unit investment trusts and closed-end mutual funds
Measurement Approaches

• *Initial transaction* date based – amount assigned when the asset was acquired or liability was incurred, including subsequent modifications such as depreciation or impairment

• *Current financial statement* date based – amount assigned when the asset or liability is remeasured as of the financial statement date

• Initial amounts are generally better suited to presenting information about cost of services

• Re-measured amounts are generally better suited to presenting financial position
Fair Value

- Price that would be received to sell an asset or paid to transfer a liability in an orderly transaction

- An exit price
  - Not adjusted for transaction costs

- Market based
  - Fair value measurement using assumptions market participants would use
Hierarchy of Fair Value Inputs

- **Level 1** – quoted prices in active markets for identical assets or liabilities
- **Level 2** – quoted prices for similar assets or liabilities
  - quoted prices for identical or similar assets/liabilities in markets that are not active
  - Other than quoted prices that are observable
- **Level 3** – unobservable inputs
## Disclosure of Fair Value Inputs

<table>
<thead>
<tr>
<th></th>
<th>FYE</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Debt securities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. Treasury</td>
<td>$100</td>
<td>$20</td>
<td>$80</td>
<td>0</td>
</tr>
<tr>
<td>Corporate bonds</td>
<td>25</td>
<td>5</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total debt securities</strong></td>
<td>125</td>
<td>25</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td><strong>Equity securities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial services</td>
<td>50</td>
<td>50</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Health care</td>
<td>30</td>
<td>30</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total equity securities</strong></td>
<td>80</td>
<td>80</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Hedge fund investments</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equity long/short</td>
<td>40</td>
<td>40</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Real estate fund</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total hedge funds</strong></td>
<td>60</td>
<td>0</td>
<td>40</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total fair value</strong></td>
<td>$265</td>
<td>$105</td>
<td>$140</td>
<td>$20</td>
</tr>
</tbody>
</table>

*For illustrative purposes only.*
Disclaimer

This material is based on information obtained from sources generally believed to be reliable and available to the public, however PFM Asset Management LLC cannot guarantee its accuracy, completeness or suitability. This material is for general information purposes only and is not intended to provide specific advice or a specific recommendation. All statements as to what will or may happen under certain circumstances are based on assumptions, some but not all of which are noted in the presentation. Assumptions may or may not be proven correct as actual events occur, and results may depend on events outside of your or our control. Changes in assumptions may have a material effect on results. Past performance does not necessarily reflect and is not a guaranty of future results. The information contained in this presentation is not an offer to purchase or sell any securities.