CPIM Academy

CPIM

CENTER FOR PUBLIC INVESTMENT MANAGEMENT

A PROGRAM BROUGHT TO YOU BY:

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TREASURER OF OHIO

INV 221:

Principles of Investment Accounting

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Investment Accounting System

- Ensures full disclosure and accountability (reports are public records)
- Accurately describes all investments
- Can be used to accurately measure performance
- Promotes "clean" audits

Investment Reports

- Components of investment reports include:
  - An inventory of all securities which includes CUSIP, par value, book value, settlement date, maturity date, coupon (rate), yield, market value.
  - A record of all investment transactions (purchases, sales, calls, maturities)
  - A record of all income (interest received, realized capital gains)

Components of the Inventory

- ***CUSIP:*** Letter and number combinations assigned to identify publicly traded securities. Each number is unique to the issue.

- ***Par Value:*** The value of a bond at maturity; its future value.

- ***Market Value:*** The estimated liquidation value of each security as of a specific date; may be greater (or less) than your purchase cost due to changing interest rates.

Components of the Inventory

- ***Book Value (Cost):*** The amount disbursed to purchase a security, including any accrued interest due to the seller on the settlement date.

  - The buyer will receive the entire coupon payment at the next interest payment date.

    Book Value = Principal + Accrued Interest

    (Principal Cost= Par Value * Purchase Price)

  - After the next interest payment is received, the accrued interest is amortized from the book value and the book value will equal the principal cost.

Components of the Inventory

- ***Settlement Date:*** The date in which the securities are delivered versus payment. The statute requires "delivery vs. payment" (DVP) and the use of a qualified safekeeping agent.

- ***Maturity Date:*** The future date in which the par amount is paid to the investor. The par value will be paid at maturity, regardless of original purchase cost.

Components of the Inventory

- ***Coupon (or Rate):*** The annual percentage amount paid to an investor, based upon the par value of the bond; the rate may be fixed or variable.

- ***Yield to Maturity:*** The rate of return anticipated on a bond if it is held to maturity.
  - If a bond was purchased at a discount, YTM > the coupon.
  - If a bond was purchased at a premium, YTM < the coupon.
  - If a bond was purchased at par (100), YTM = coupon.

The Portfolio Inventory

- Categorize investments by issuer and type
  - Issuers include: Fannie Mae (FNMA), Freddie Mac (FHLMC), Federal Home Loan Bank (FHLB), Federal Farm Credit Bank (FFCB), and Farmer Mac (FAMCA), U.S. Treasury (UST)
  - Types include: Callable bonds (fixed rate and step-ups), Non callable bonds (or bullets), Discount notes

The Portfolio Inventory

- Transaction numbers or some other form of internal identification number may be assigned as a way to track or locate historical transactions [useful during audits].
- If used, transaction numbers should be retained until the security has matured or has been sold.
- Transaction advices should include all details of the trade.

CUSIP	Issuer	Par Value	Stated Rate	Maturity Date	Purchase Date	DTM	YTM	Market Value	Accrued Interest At Purchase	Current Principal	Book Value
Commercial Paper - Discount											
46640PKB8	JP Morgan	600,000.00	0.990	10/11/2016	1/19/2016	224	1.010	595,611.00		595,611.00	595,611.00
CP - Discount Totals		600,000.00				224	1.010	595,611.00	0.00	595,611.00	595,611.00
Federal Agency - Coupon (NC)											
3137EADQ9	FHLMC	750,000.00	0.500	5/13/2016	10/28/2013	73	0.527	750,122.25	Received	749,490.00	749,490.00
3137EADH9	FHLMC	1,000,000.00	1.000	6/29/2017	1/23/2014	485	1.143	1,002,675.00	Received	995,200.00	995,200.00
3133EDNC2	FFCB	225,000.00	0.700	1/13/2017	6/13/2014	318	0.750	225,437.63		224,712.00	224,712.00
3133EEDF4	FFCB	550,000.00	0.850	7/28/2017	12/9/2014	514	0.885	550,521.95	Received	549,500.05	549,500.05
3133EEJ50	FFCB	1,000,000.00	1.030	5/11/2018	5/11/2015	801	1.099	1,000,959.00		997,970.00	997,970.00
3130A5JG5	FHLB	500,000.00	0.850	12/29/2017	6/8/2015	668	0.905	501,078.00		499,305.00	499,305.00
3130A5M48	FHLB	500,000.00	1.250	9/25/2018	6/15/2015	938	1.263	503,635.00		499,794.35	499,794.35
3130A5NC9	FHLB	275,000.00	1.300	10/30/2018	6/11/2015	973	1.311	276,763.03		274,901.00	274,901.00
3130A6AL1	FHLB	1,025,000.00	1.150	8/14/2018	8/14/2015	896	1.185	1,030,607.78		1,023,944.25	1,023,944.25
3136G0P54	FNMA	500,000.00	1.200	4/17/2019	9/4/2015	1,142	1.340	501,328.50	Received	497,533.00	497,533.00
313380FB8	FHLB	500,000.00	1.375	9/13/2019	9/21/2015	1,291	1.452	502,127.00	152.78	498,516.50	498,669.28
3136G0T68	FNMA	500,000.00	1.330	10/24/2019	9/21/2015	1,332	1.522	501,911.50	Received	496,200.00	496,200.00
Fed. Agency (NC) Totals		7,325,000.00				760	1.107	7,347,166.64	152.78	7,307,066.15	7,307,218.93
Federal Agency - Coupon (Callable)											
3135G0TM5	FNMA	1,000,000.00	1.020	1/30/2018	3/20/2013	700	1.041	992,958.00	Received	999,000.00	999,000.00
3133EED56	FFCB	350,000.00	1.420	4/29/2019	4/29/2015	1,154	1.420	350,063.70		350,000.00	350,000.00
3135G0TB9	FNMA	500,000.00	1.570	1/9/2020	9/4/2015	1,409	1.690	499,994.50	Received	497,500.00	497,500.00
3136G2P27	FNMA	535,000.00	1.150	9/28/2018	9/30/2015	941	1.150	535,081.32		535,000.00	535,000.00
313383BF7	FHLB	450,000.00	1.000	2/12/2018	1/20/2016	713	1.089	448,549.65	475.00	449,190.00	449,665.00
3133EFZW0	FFCB	500,000.00	1.500	2/18/2020	2/18/2016	1,449	1.500	499,717.00		500,000.00	500,000.00
Fed. Agency (C) Totals		3,335,000.00				1,006	1.271	3,326,364.17	475.00	3,330,690.00	3,331,165.00
Treas. Securities – Coupon											
912828TH3	USTN	1,000,000.00	0.875	7/31/2019	11/9/2015	1,247	1.502	995,312.00	Received	977,343.75	977,343.75
Treas. Securities Totals		1,000,000.00				1,247	1.502	995,312.00	0.00	977,343.75	977,343.75
Investment Totals		12,260,000.00				840	1.178	12,264,453.81	627.78	12,210,710.90	12,211,338.68

Separation of Accounting Duties
Understanding Responsibilities During the Reconciliation Process

Investing Authority

Maintains official investment records

Balances with custodian and Investment Manager

Registered Investment Advisor

Prepares monthly/quarterly reports

Brokers/Dealers

Sends trade confirmations to Public Entity and Investment Manager

Custodian Bank

Issues monthly custody statements

The Concept of Asset Conversion

- An investment transaction is a conversion process.

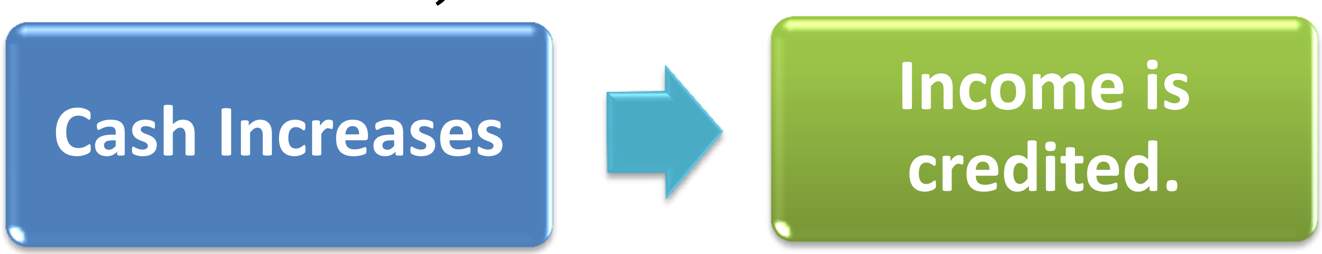
CASH → INVESTMENT

INVESTMENT → CASH

  - Cash and investments are both assets of your public entity.
  - Adjustments are made between cash and investments when bond purchases, sales, maturities, and calls take place.

The Concept of Asset Conversion

- Cash account and Investment account
  - A bond purchased for $1 million reduces cash and increases investments on the settlement date by that amount.
  - The total assets of the public entity remains the same.
- The total asset value of the public entity increases when the investment pays interest (or when capital gains are realized).



Cash Basis Portfolio Accounting

- Public entity investment reports use cash basis portfolio accounting.
  - Purchase cost is reduced by the amount of purchased accrued interest at the next interest payment date.
  - Purchase cost remains level to the maturity or sale date.
  - Premiums are not amortized; discounts are not accreted (Exception: Premiums may be amortized over the life of the security through the application of realized income).
  - Income is reported when received (realized).
  - Realized income is shown as proceeds minus cost.

Accrual Portfolio Accounting

- Purchase cost is adjusted daily ("adjusted book value")
- Premiums are amortized daily over the life of the security
- Discounts accrete daily over the life of the security
- Interest accrues daily
- Capital gains/losses are based upon adjusted book value

Reconciliation Process

- The public entity's internal record-keeping is subject to audit by the State Auditor.
- Components of the Reconciliation Process:
  - Internal Records (the official books)
  - Custodian bank – safekeeping of investment assets, purchase cost, income, trade activity
  - Investment advisor (if used) – inventory of assets and individual purchase cost, income, list of transactions
  - Additional records – broker/dealer trade confirms

Reconciliation Process

- A "pay-in" is made by the Public Entity evidencing a receipt of funds. This transaction is the difference between the proceeds (maturity, sale, called bond) and the original investment cost.

- Other investment transactions to be "paid-in" include interest payments. A "pay-in" typically occurs when a receipt of funds is credited at the custodian.

Common Reconciliation Errors

- Using market value rather than book value (c0st)
- Failing to account for purchased accrued interest
- Not recognizing a discount at maturity
- Not amortizing a premium paid
- Not maintaining supporting documentation
- Not recognizing income when received

Net Effect Between "Total Cash" & "Total Investments"

- A bond with an original issue date of 6/12/13, purchased in the secondary market for a settlement date of 1/20/16, at a price of 99.82 with a coupon of 1.00% and maturing on 2/12/2018, will affect the total cash account as follows:

449,190.00	450,000 Par Value minus a discount of 810
+ **475.00**	Accrued interest paid at purchase = Initial Purchase Cost
= **449,665.00**	Reduction in total cash offset by an increase in total investments

Net Effect between "Total Cash" & "Total Investments"

- At the following interest payment date (06/12/2016), cash and investments are affected as follows:

  Gross interest payment received minus accrued interest paid at purchase = net interest income (the "pay-in" amount):

$ 2,250.00	Interest received (credited by the custodian bank)
- **475.00**	Accrued interest paid at settlement date (1/20/2016)
$ 1,775.00	Net interest income (Increase in cash offset by a decrease in investment cost)

Net Effect between “Total Cash” & “Total Investments”

- Another method is to increase cash by the full amount of the next interest payment received, which has been previously offset by a negative addition to income at the original settlement date of purchase.
- In the example shown, the amount of accrued interest paid at original purchase, $475.00, is treated as a negative to total cash on the purchase date, noted as a bracketed entry, (475.00).

Net Effect between "Total Cash" and "Total Investments"

- The amount of the decrease in the cash account and the amount of the increase in the investment account = the price of the bond (principal) plus any accrued interest paid at purchase.

- Price may also include a premium (100.02) paid at purchase, as illustrated in the following example:

Par	**$450,000.00**	
Premium	**90.00**	**(principal = price including premium)**
Acc. Int	**475.00**	
Net	**$450,565.00**	**(Due on settlement date (paid vs delivery -"DVP")**

- Purchased accrued interest is amortized at the next interest payment date. The premium is amortized at maturity (refer to exception).

Net Effect between "Total Cash" & "Total Investments"

- A straight interest payment (after the amortization has taken place) is paid-in totally, as an increase in the cash account.
  - This amount is recognized even if the amount of interest paid has been totally credited to the money market sweep account within the custody account.
  - From an accounting perspective, cash is debited and interest income is credited.

Net Effect between "Total Cash" & "Total Investments"

- On cash basis accounting (utilized by Ohio public entities), a negative pay-in may occur at maturity if the premium paid on a bond exceeds the final interest payment amount.
- Additionally, in the case of callable securities where a premium has been paid, a lower yield will be realized if the bond is called prior to maturity.

Net Effect between "Total Cash" & "Total Investments"

- The premium paid remains a part of the fixed-cost at purchase, plus any accrued interest paid.
- The actual "yield" of the bond would have been reflective of current market yields at the time of purchase:
  - FHLB 1.00% due 2/12/18 with an original settlement date of 1/20/16 if offered at a price of 100.02 would result in a yield to maturity of 0.99% but a yield to call on 3/12/16 of only 0.86%.

Transactions - Checks and Balances

Investing Authority (Public Entity)

Investment manager verifies inventory purchase cost with custody statement

State Auditor examines individual transactions and compares to Custody statements and internal records of Treasurer (transaction advices and broker/dealer confirms)

Brokers/Dealers

Affirm transaction with custodian

Deliver/receive bonds vs. payment (DVP)

Payment date = settlement date

Custodian Bank

Pays for purchases/delivers sold bonds on settlement date DVP

Review and Questions