MANAGEMENT OBJECTIVE(S)

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Ensure that public investments are properly managed so that returns from funds are maximized while capital is safeguarded and investments are in compliance with laws, regulations and other contractual obligations.

BACKGROUND

Investments allow entities to use idle funds to generate additional revenue. These additional revenues may allow governments to reduce tax burdens while increasing the resources available to provide goods and services to the general community. For the fiscal year ended August 31, 1993, approximately $97 million or 0.5 percent of the State's general fund revenue was generated through its investment activities.

The management of investments is an important part of ensuring that public funds are used effectively and efficiently. Investments must be protected against theft and fraud as well as non-systematic decision-making. The process of investment management should be linked to strategic planning. Returns should be used as specified by law or organizational policy.

The function of managing public investments in Texas is delegated to several state agencies. The State Treasurer is charged with the investment of the general revenue fund. Colleges and universities, as well as certain state agencies, are authorized to invest funds not deposited with the State Treasury. In addition, numerous retirement systems in Texas are authorized to invest funds to ensure the settlement of existing and future pension-related benefits. As of August 31, 1993, investments represented over 70 percent of the State's total asset base. Of this amount, 79 percent were held in pension trust funds. The Texas State Pension Review Board provides state and local retirement systems in Texas with information and technical assistance regarding administration and investment of the funds.

DEFINITIONS

An **investment** is any asset or property right acquired or held for the purpose of earning income. Typical investments include U.S. treasury bills and notes, bond issues, corporate securities, and real estate. A group of investments is referred to as a **portfolio**.

Portfolio management includes safeguarding principal and maximizing return while maintaining sufficient liquidity to meet current financial obligations. Income can be generated in the form of dividends, interest or capital appreciation (i.e. the asset's value increases over the time period held). Booking **unrealized gains or losses** matches performance of investments with the proper period.

Safety of capital refers to conducting investment transactions so that public funds are not lost. The safety of capital involves the reduction of various types of risk, such as interest rate risk, default risk, and market risk. **Diversification** is a strategy often used to reduce these types of risk. A reduction in overall risk is achieved by placing funds in various instruments, each having a different risk level. Low-risk investments are used to offset high-risk investment activity. Inadequate portfolio diversification could result from lack of controls over the investing

function, investment personnel's excessive reliance on brokers or dealers in making investment decisions, or pressures on investment personnel to produce more income.

The **risk** associated with an investment represents the chance due to uncertainty, that intended objectives will not be attained. Risk is directly proportional to investment returns. That is, investments yielding higher returns will also carry greater risk. The tradeoff between risk and return must be assessed by the investing entity. **Risk** can be categorized in several ways.

- **Capital risk** refers to the risk that an investor may not recover all or a portion of his or her original capital at the time an investment has been liquidated.
- **Contraction risk** is the risk that a security will shorten in average life due to faster than expected prepayments. This type of risk is normally associated with mortgage securities.
- **Credit risk** refers to the likelihood that a party involved in an investment transaction will not fulfill its obligations. This type of risk is often associated with the issuer of the investment security and is affected by the concentration of deposits or investments in a single instrument or with a single institution (GASB, April 1986, p.44).
- **Custodial credit risk** is the risk that a government will not be able (a) to recover deposits if the depository financial institution fails or (b) to recover the value of investment or collateral securities that are in the possession of an outside party if the counterparty to the investment or deposit transaction fails. (GASB, December 1991, p.2)
- **Extension risk** is the risk that a security will lengthen in average life due to slower prepayment speeds. This type of risk is generally associated with mortgage securities.
- **Interest rate risk** refers to the risk that longer-term fixed income stocks will drop in market value if general interest rates climb or the risk that interest rates will change above current levels on a locked-in or fixed rate instrument.
- **Legal risk** is the risk that action by a court or by a regulatory or legislative body could invalidate a financial contract (GAO, May 1994, p. 9).
- **Market risk** refers to the risk that the market value of an investment, collateral protecting a deposit, or securities underlying a repurchase agreement will decline. This type of risk is affected by the length to maturity of a security, the need to liquidate a security before maturity, the extent that collateral exceeds the amount invested, and the frequency at which the amount of collateral is adjusted for changing market values (GASB, April 1986, p.45).
- **Prepayment** is payment in excess of the scheduled principal repayment of a mortgage loan. Uncertainty about the amount and timing of prepayments results in **prepayment risk**.

Tolerable risk represents the level of risk an entity is willing to accept without regards to the potential returns. Only investment activity below this threshold will be undertaken. Tolerable risk should be established when the entity outlines its investment objectives.

Return on investment (ROI) measures the amount gained by placing funds in certain types of investments. ROI is often used synonymously with **rate of return** and **return on assets**. The two most widely used and accepted methods are the **dollar weighted** rate of return and the **time weighted** rate of return (Texas Pension Review Board, p. 89).

The **dollar weighted rate of return on investment** reflects the combined effects of additions to and withdrawals from the fund. An example of dollar weighted rate of return is investment income (e.g. dividends received and interest earned) divided by the cost of the investment (e.g. acquisition costs including broker fees and commissions).

The **time weighted rate of return,** the **Bank Administration Institute (BAI) return**, and the **unit value return** are all synonymous. This is another way to compute the return on investment in a way that screens out the effects of cash flows. The formula for computing the time weighted rate of return is $ROI = ((M_e - 0.5 \times C)/ (M_b + 0.5 \times C)-1)$ where M_e = Ending Market Value, M_b = Beginning Market Value, and C = Net Cash Flow (Contribution - Withdrawals) (Texas Pension Review Board, p. 89).

Yield is the annual return on an investment (from dividends or interest) expressed as a percentage of either cost or current price. **Yield to maturity** refers to the yield of a bond also taking into account the premium or discount of the bond (Little and Rhodes, p. 20).

A **strategy** is an approach used to accomplish predetermined goals and objectives. Investment strategies can be active or passive, structured or unstructured (Fabozzi and Fabozzi, p. 3).

Investment in **equities** represents an ownership interest, principally the portion of a corporation's assets that is owned by the holders of its common stock. A **stock** is defined as a share in the ownership of a corporation, representing a claim on its earnings and assets. **Domestic** equities are common stocks and securities convertible to common stock. **International** equities are securities of non-U.S. companies traded on foreign security exchanges and denominated in foreign currencies or in American Depository Receipts (**ADRs**) traded and custodied in the U.S. (in dollars) (Texas Pension Review Board, p. 25).

Equity portfolio management is normally classified as either active or passive. **Active** portfolio management consists of the purchase and sale of stocks based on industry and market research by the entity and its investment advisor(s). Extensive research is performed to determine expected future earnings and the anticipated increase in a particular stock's value. **Passive** portfolio management does not require extensive

research of specific industries or stocks. Stocks are purchased and sold based on activity in a specified market index.

Some common examples of **market indices** are the Standard & Poor's 500 (S&P 500), Dow Jones Industrial Average, and the EAFE (Europe, Australia, and the Far East). The **S&P 500** represents the aggregate market value of the common equity of 500 stocks primarily traded on the New York Stock Exchange. The **Dow Jones Industrial Average** is based on the average market price of 30 of the largest, most widely held stocks traded on the New York Stock Exchange. The **EAFE** is an index of all country markets exclusive of North America (Texas Pension Review Board, pp. 29 and 35).

Two of the best known **stock exchanges** are the New York Stock Exchange (**NYSE**) and the American Stock Exchange (**AMEX**). These exchanges make up what is commonly referred to as Wall Street. The two major functions of these exchanges are to provide a primary and secondary market for trading stocks in a two-way auction process. Through the **primary market** corporations sell their stocks and bonds directly to the public thereby obtaining the money needed for expansion. The process of bringing a stock issue to the market for the first time is called "**going public**." After a company has gone public, its shares are traded in the **secondary market** which provides the investor with an adequate number of bids to buy and offers to sell, as well as an opportunity to sell shares at any time (Little and Rhodes, p.24).

Another well-known system for trading securities is the National Association of Securities Dealers Automatic Quotation (NASDAQ) system. The **NASDAQ** system provides brokers and dealers with price quotations of securities traded over-the-counter (OTC). **OTC** refers to the nationwide network of brokers/dealers engaged in buying and selling securities that, for the most part, are not listed on exchanges. One major difference between the exchanges (NYSE and AMEX) and the OTC market is the method of order execution. Trading on an exchange is accomplished by a two-way auction process while OTC trading is by negotiation (Little and Rhodes, p. 17). OTC stocks tend to be smaller, newer companies. The major exchanges have capital and size requirements.

An important federal entity is the Securities and Exchange Commission (SEC). The **SEC** was established by Congress to administer the Securities Act of 1933 and several other investment-related acts (Little and Rhodes, p. 19).

Fixed income securities earn a fixed return, in the form of interest or dividends, over a specified period of time and include government and corporate bonds, preferred stocks, and mortgage investments. This asset class is expected to provide regular, predictable income and greater stability of market value than available from equity investments (Texas Pension Review Board, p. 25).

Cash and cash equivalents are highly liquid investment instruments with a maturity of less than one year or investments in a custodian bank's STIF (short term investment fund) or similar fund. Such securities help to dampen risk during volatile market periods as well as provide cash flow (Texas Pension Review Board, p. 25).

An entity which has large investment holdings will often obtain the services of a **custodian bank** to hold securities, record transactions, and collect interest or dividends from the investments. The custodian bank is sometimes referred to as the primary or master custodian because it obtains the services of subcontractors and agencies to actually hold and trade the securities. Examples of these subcontractors are Depository Trust Corporation (**DTC**), Bankers Trust Company (**BTC**), Participant Trust Company (**PTC**), and the Federal Reserve Bank. Services provided by these subcontractors include acceptance of deposits of eligible securities for custody, execution of book-entry deliveries of securities, recording of book-entry pledges of securities through accounting entries, and collection of dividends and interest.

Book entry is a system that eliminates the need for physically transferring bearer-form paper or registering securities by using a central depository facility.

The date on which a transaction takes place is referred to as the **trade date**. The date on which money or securities are due once securities have been purchased or sold is referred to as the **settlement date** (Little and Rhodes, p.19). The settlement date is normally five days after the trade date.

Derivatives are any one of a number of financial products that are created from, or whose value depends on (is "derived" from) the performance of other assets, including securities, rates, or indexes. In recent months, there has been increased interest in this complex class of investments. See Appendix on Derivatives for additional definitions and information.

A **factor** is a decimal number representing the percentage of the outstanding principal balance to its original face. This term is primarily used in connection with mortgage securities.

Spread refers to the yield differential in basis points that one security will earn over another.

OVERVIEW OF THE PROCESS

The basic phases of an investment management process are:

- **Identify investment constraints and preferences.**
- **Establish written objectives and investment polices.**
- **Develop and document administrative systems and internal controls.**
- **Select an investment outlook and strategy.**
- **Select investment instruments.**
- **Record and report investment transactions.**
- **Monitor the portfolio and the environment.**
- **Reevaluate the investment management process. This may include revising the investment policies.**

PROCEDURES

Suggested procedures, organized according to the elements of a finding, are listed below. They should be expanded or tailored to fit the specific entity being reviewed.

Note: The following procedures and the process described above are normative, rather than prescriptive. That is, they represent "average" or baseline thinking since they assemble information which repeatedly appeared in the various resources used to prepare this module. Do not be too hasty or literal in applying a given criterion or procedural step to a specific entity. While omissions or variations may be obvious, judgement must still be used to determine whether such omissions or variations are material.

Review criteria:
General criteria

General criteria applicable to the investment management process are as follows:

Key elements in the investment management process can be summarized into the following components:

1. identification and documentation of investment opportunities, constraints, preferences, and capabilities (Miller, p. 2)
2. formulation and implementation of strategies to acquire investments (Miller, p. 2)
3. monitoring of general economic conditions and specific portfolio performance (Miller, p. 2)
4. adjustment of investment portfolios in response to changing conditions or circumstances (Miller, p. 2)
5. recording and reporting of investments information in conformance with Generally Accepted Accounting Principles (GAAP) and professional standards

Management control objectives for a structured investment management process include (Miller, p. 19):

1. Ensure proper authorization
2. discourage unsystematic or haphazard action
3. ensure appropriate research and documentation
4. explore all available opportunities
5. provide sufficient information for plan revisions and serve as a basis for improved policies and investment returns
6. prevent or detect errors and irregularities in the recording and reporting process

There are four primary causes of less than optimal investment results. They are 1) speculation, 2) abrogation of responsibility, 3) lack of internal controls and 4) lack of supervision (Davis, p. 30).

Specific criteria

The criteria related to the basic phases of the investment management process are as follows:

Identify investment constraints and preferences

Because public investment activities are often limited by state statutes and other contractual obligations, these constraints should be considered. The table below describes several key statutes which limit the investment scope and authority of state entities.

Title of Legislation	General Description	Legal Cite
State Treasurer	Describes the power and duties of the state treasurer.	Government Code, Chap.404 .
State Funds Reform Act	Discusses certain requirements pertaining to the deposit of funds into the treasury and electronic transfers of certain payments.	Government Code, § 404.91
Public Funds Investment Act	Identifies authorized investments for cities, counties, school districts, institutions of higher education and other political districts; provides guidance in establishment of investment policies and expected investment returns. requires the submission of reports to management at least annually.	Government Code, Title 10, Chap. 2256
Public Funds Collateral Act	Provides guidance in assessing the adequacy of collateralized public funds and related disclosures.	Government Code, Title 10, Chap. 2257
Public Retirement Systems	Establishes the power and duties of the State Pension Review Board. outlines general administrative requirements for all public retirement systems.	Government Code, Title 8, Chap. 801-855
Pension System for Police Officers and Fire-fighters in Certain Cities	Outlines provisions for municipal pension systems for police officers and fire-fighters in cities with populations greater than 432,000.	V.T.C.S., Art. 6243a-1
Investment of the Permanent University Fund	Provides description of authorized investments.	Constitution, Art. 7, § 11a

In addition to statutory requirements identified above, investment activities may be constrained by riders usually discussed in the general provisions (i.e. Section V) of the appropriations bill. There may also be additional legal constraints. Other practical constraints will come from the historic need for liquidity for a specific fund, and needs of the primary customer base.

The preferences of boards, legislators, customers, and the public should be considered (Miller, p.4). Preferences may indicate investment strategies to be pursued, or risk levels, or added constraints over future investments. (For example, there may be a strong customer preference on investing in compaines that engage in animal testing.)

Establish written investment objectives and policies

An investment policy with clearly defined goals and objectives should be established by the governing board. The policy should include:

- the board's expectations for portfolio diversification
- allowable investments
- acceptable risk levels
- expected rates of return

The scope of the investment policy should be specific, clearly designed to govern all investment transactions (Miller, p. 24).

Every investment policy should contain a concise and clear statement of objectives (Miller, p. 24).

Investment objectives can be short or lengthy, but they should be detailed. Some examples of possible objectives follow:

- The performance objective of the fixed income portfolio is to achieve a total time-weighted rate of return over rolling five-year periods in excess of the Shearson Lehman Aggregate Index at a degree of volatility no greater than the index. Volatility is measured as the standard deviation of the quarterly returns.
- The performance objective of the short-term portfolio is to achieve above median performance on a time-weighted basis over rolling five-year periods relative to pre-defined universe of actively managed short-term portfolios.
- The capital preservation objective pertaining to all portfolios is to minimize risks of loss by complying with the diversification and quality constraints outlined in the investment policy and using prudent judgment in all investment decisions.

The investment policy should include constraints relating to diversification of the portfolio(s). For example, a policy may contain some of the following constraints:

- Total investments in any one corporation may not exceed X% of the book value of the total portfolio.
- Investment in the stock of any one corporation may not exceed X% of the voting stock of that corporation.
- To be eligible for purchase, debt of U.S. corporations must be rated "A-" or better by a nationally recognized bond rating service.

- To be eligible for purchase, commercial paper must have an A-1 or P-1 rating. The amount invested in any one name shall not exceed X% of the credit line of the issuer.
- To be eligible for purchase, Certificates of Deposits must be fully insured or 100% collateralized with U.S. Treasury or Government Agency Securities backed by the full faith and credit of the U.S. Government.
- No less than X% of the book value of the fund must be invested in government securities.
- No more than X% of the book value of the total assets of the fund will be invested in any one mortgage.
- No more than X% of the book value of the portfolio will be invested in direct mortgages.
- No more than X% of the total book value of all assets of the fund will be invested in non-U.S. securities or shares of trusts invested therein.

Constraints such as these will most likely appear in the investment policies of entities with large investment assets such as the pension funds and higher education funds. Smaller entities may face additional legal restrictions; however, constraints such as those above are equally necessary for small entities.

An entity's investment policy will usually contain asset allocation targets or parameters which are approved by the Board of Directors. For example, an entity may determine, after much research and consultation with investment advisors, that the assets will be allocated within the following parameters:

- U.S. Government securities 25-35%
- U.S. corporate debt 20-30%
- Domestic (U.S.) stocks 30-40%
- International stocks 5-10%

An entity's policy should list the types of investment instruments that the entity will purchase to meet its objectives. This is especially recommended if the entity is considering investment in derivatives products. The policy should be clear as to the purpose of derivatives products in the portfolio, what types of products the entity can purchase, quality constraints, and cash flow requirements/restrictions associated with the products.

An investment policy should require interim and annual reports to provide a mechanism for monitoring investment activities (Miller, p. 33). Interim reports serve to keep policymakers and portfolio managers informed of on-going transactions and decisions; they should be used for the same purpose as annual reports. The annual report should summarize prior periods' activity as well as discuss directions for the future.

The investment policy should require that a formal process be used to select depositories, brokers/dealers, and other investment managers (Miller, p. 36). The entity should have written ethical guidelines pertaining to relationships with brokers, banks, and investment managers/advisors. These guidelines are

often included in the investment policy. There should also be an ethics policy addressing conflict of interest issues and requiring annual financial disclosure of key employees and board members. Implementation should include documentation of potential conflicts of interest for board members and key employees involved with investment decisions. The financial disclosure statements currently required for board members (Article 6252-9b) could also be completed by key employees.

The investment policy should provide for formal evaluation of performance and periodic review (Miller, p. 43).

Develop and document administrative systems and internal controls

When developing internal controls, the entity should identify those risks which are most applicable. Internal controls should be used to reduce or prevent errors (i.e. technical and judgement errors) and irregularities (i.e. fraud and embezzlement) (Miller, p. 65).

Risks that should be considered by an entity's management when designing internal controls over the investments function follow (Miller, p. 66):

- Embezzlement/conversion
  - Cash
  - Securities
  - Dealings with outside parties (kickbacks)
- Mechanical transactional errors
  - Incorrect transaction amounts
  - Incorrect payees
  - Wire transfer failures
- Judgmental errors
  - Inappropriate or misguided securities selection
  - Poor market timing
  - Selection of insolvent dealer, depository
- Cover-ups
  - Fraud
  - Delaying or avoiding recognition of losses

Internal controls over investments deemed most important include (Miller, p. 31):

- Control of collusion
- Separation of functions
- Separation of transaction authority from accounting and recordkeeping
- Custodial safekeeping
- Avoidance of bearer-form securities
- Clear delegation of authority to subordinate staff members
- Specific limitations regarding securities losses and remedial action
- Written confirmation of telephone transactions
- Supervisory control of employee actions
- Minimizing the number of authorized investment officials

- Documentation of transactions and strategies

Transaction and system documentation are important elements of internal control. Transaction documentation creates a mechanism for monitoring and facilitates the training of personnel for assigned tasks. System documentation allows the entity to verify that the system has been implemented and operated as designed (Miller, pp. 65-71).

Select an investment outlook and strategy

An investment outlook refers to an entity's expectations about future opportunities based on existing information. The outlook should be broad enough to encompass stock and bond markets and financial instruments, as well as general economic conditions, both domestic and abroad (Miller, p. 219).

Two of the most common methods of obtaining information necessary to developing an investment outlook are:
- forming an investment advisory committee
- hiring investment consultants

An **investment advisory committee** is composed of the entity's investment manager and individuals selected from the general public who have extensive investments knowledge and experience. The committee reports to the entity's Board of Directors.

The committee should meet with the entity's investment advisors and staff periodically, but no less than once a quarter. The advisors present economic information such as expected changes in interest rates, current and future national economic growth, and other factors that may affect the economy in the future. The investment advisors also present industry information that may affect future decisions in selecting specific securities. The advisors present lists of securities that are recommended for purchase and also those securities that the entity should consider removing from the Board approved list.

The committee should have discussions with the advisors and other members of the committee to obtain additional information. The committee then votes on proposed changes to the lists of securities recommended for purchase or sale. The committee also votes on proposed changes to the investment policy, investment strategy, and changes in accounting principles to be applied in recording and reporting investments information.

All proposals approved by the investment advisory committee should be taken to the Board of Directors for approval. The Board's decisions regarding the proposals should be the final approval. The investment manager and advisors should inform the Board regarding current and expected future economic conditions, industry

information, and any other information that might affect their decisions on proposals.

All of the information presented by the investment advisors and manager are normally in written form. Each Board member should receive the written information prior to Board meetings so that the information can be reviewed. The discussions in the investment advisory committee meeting and Board meeting regarding investments should also be found in the Board meeting minutes and the investment advisory committee meeting minutes.

Large entities, such as the pension funds, obtain the services of **investment advisors.** Information provided by the advisors supplement in-house research related to investment outlook.

The entity's investment manager and staff should stay in constant contact with their investment advisors. The advisors provide information and correspondence that affects daily decision-making, such as the timing of purchases or sales. Some of the information provided by the investment advisors in these regards may not be available in written form. This type of information could be misused by anyone inside or outside of the entity for personal gain. Misuse of the information could also jeopardize an entity's investment decisions.

Small entities probably will not have investment advisory committees or investment advisors that can be consulted at any time. The small entity may contract with an advisor on an as-needed basis, rely on their bank for investment information, obtain information from brokers/dealers, or conduct in-house research for an investment outlook.

In any case, a small entity should ensure that the investment manager is highly qualified in developing investment strategies and managing the portfolio. The manager should have the expertise to scrutinize investment instruments proposed for purchase and economic information provided by brokers/dealers. The manager should obtain investment related training on a regular basis.

Any entity's board of directors should have one or more members who have sufficient knowledge/training in investments to make prudent investment policy decisions. Board members should also be able to scrutinize actions proposed by the investment manager or outside parties (i.e. brokers/dealers, banks, etc.).

Formal investment outlooks allow entities to identify major factors likely to influence the markets, record present trends and developments, and document expected future scenarios (Miller, p. 229).

An investment strategy should be developed which considers the risk/return relationship of the different types of investments available (Reed, p. 60). The

strategy must also consider the investment outlook to ensure that the entity will meet its investment objectives.

Select investment instruments

The investment selection process is critical for any entity to meet its objectives. There are numerous investment instruments in the financial market, many of which are complex. Each instrument has varying yields, maturities, and risks associated with it.

Common types of investment instruments found in state agencies and universities include:

- U.S. bonds and notes
- U.S. Treasury bills
- Corporate bonds
- Domestic stocks
- International stocks
- Mortgage-backed securities (MBS)
- Collateralized mortgage obligations (CMO)

Mortgage-backed securities and CMOs fit the broad definition of derivatives and are traded in the form of a security. They are currently in the portfolios of the pension agencies (ERS and TRS), Texas Education Agency (i.e., Permanent School Fund), the University of Texas (i.e., Permanent University Fund), and other state agencies and universities. See appendix on Derivatives for more information.

If an entity determines that it needs MBSs, CMOs, or other derivatives products to balance its portfolio, management must be particularly cautious in the investment selection process. An entity's management must have a very good understanding of the derivative products that are being considered for purchase. The different types of risk (i.e., prepayment risk, credit risk, extension risk, contraction risk, etc.) and the effect that these risks can have on yield and cash flow are especially important for management to understand.

Key elements common to the investment instrument selection process are:

- Investment advisors assist in the selection of both equity and fixed income securities.
- The investment division employs highly qualified personnel to monitor advisors, for in-house investment selection, and to execute investment decisions (See the Human Resources module).
- Specific dollar limits (dollars/share of stock) should be set for the purchase of stocks in active portfolios. These limits are usually based on recommendations from investment advisors.
- Purchase and sale of equities in a passive portfolio are based on activity in a specified financial market index (i.e. S&P 500, EAFE).

- The purchase/sale of equities or fixed income instruments should be in alignment with the entity's investment strategy, acceptable risk levels, and diversification guidelines.
- Specific yields and maturities of fixed income securities should be aligned with the investment strategy.
- Facts and research materials that lead to a decision to purchase/sale investment(s) should be documented.

After the selection process has been completed, an entity must execute the transaction(s). Key elements in the transaction execution process are:

- Authorization by appropriate investment management to purchase/sale investments should be documented on the entity's approved transaction forms.
- A process should be in place for selection of stockbrokers to execute purchase/sale transactions. This includes a procedure to spread the business among several stockbrokers to avoid preferential treatment and ethics issues (also to prevent possible irregularities). Entities will often develop an approved stockbroker eligibility list. The stockbroker is licensed to trade investment instruments in the financial markets (NYSE, AMEX, OTC, etc). He/she makes the trade and also ensures that the transaction is cleared to protect the entities' rights to the investment instrument. Stockbrokers may perform services (full service stockbroker) in addition to merely executing a trade. Full service stockbrokers offer information and advice on specific investments.
- An ethics policy should be documented that encompasses relationships between the entity's investment personnel (including the manager) and stockbrokers. The policy should be specific regarding acceptable relationships and unacceptable practices. The ethics policy should be approved by the Board of Directors and is often found in the investment policy.
- Especially for complex investment instruments, various pricing sources should be used in making purchases. When competing bids are not obtained, the reasons should be documented. Documentation related to potential investments should be reviewed and analyzed, including prospectuses, Bloomberg data, volatility ratings, and other available information.
- Authorization to release funds for purchase of investments should be documented (signatures of appropriate officials on a purchase voucher).
- The investment department should communicate with the accounting and cash management departments during the execution of transactions. Accounting needs information on transactions to initiate the recording process. Cash management must be notified any time there is going to be a cash withdrawal (investment purchase) or cash coming to the entity (investment sale).
- The accounting department must notify the custodial bank to expect a transaction. The custodial bank will handle the exchange of cash and securities during execution of the transaction.

- DTC, BTC, or the Federal Reserve eligibility of the security must be established.
- Investment staff should receive and check all information on the broker confirmation and investigate any problems noted. (Did the entity get what they ordered at the correct price, quantity, interest rates, conditions, maturity, etc?) The entity's staff normally places an order over the phone or by fax with the stockbroker. The broker confirmation should confirm the specifics of the transaction that were communicated over the phone or fax.
- The entity should receive and document the DTC, BTC, Federal Reserve affirmation on investment purchases. This determines that book entry ownership was changed to the entity.
- Copies of documentation (broker confirmation, transaction ticket, etc.) should be sent to accounting for proper recording.

Record and report investment transactions

Entities that have investment portfolios must have qualified accounting staff that are capable of dealing with complex investment accounting issues. Investment accounting staff must be knowledgeable in the application of GAAP and reporting standards pertaining to investments recording and reporting.

The entity must record investment transactions in accordance with generally accepted accounting principles. The entity must have a process in place to report investment activity and balances in accordance with reporting standards established by authoritative accounting pronouncements. This requires the accumulation, classification, and summarization of investment transactions through:

- Maintenance of general ledger accounts which:
  - track investments by classes
  - capture investment related expenses such as broker commissions, SEC fees, professional services provided by advisors
  - track income derived from investments including interest, dividends, gains/losses by investment classes
- Maintenance of subsidiary ledgers for investment classes which:
  - track data such as transaction type and dates, maturity dates, par value, premium, discount, book value, yield, coupon interest rate, interest payment dates, certificate numbers, stock ticker symbol, etc.
  - anticipate interest and dividends from investments on a specified date or range of dates
  - track amortization of discount or premium of each investment
  - accumulate data pertaining to bond exchanges (primarily for pension funds which may defer gains/losses)
- Maintenance of an investment cash management system which, at a minimum, is capable of:

- anticipating proceeds from the sale of investments that will be available for reinvestment
- anticipating cash contributions into the investment portfolio from various sources that will be available for investment
- anticipating investment income payments such as dividends and interest that will be available for reinvestment
- anticipating cash withdrawals from the investment portfolio that will no longer be available for investment

See the Cash Management module for more in-depth information pertaining to cash management systems and controls.

Specialized recording and reporting procedures are necessary for some types of investment transactions. For example, public employee retirement systems (PERS) may defer gains/losses resulting from a bond exchange. An exchange is the sale of one debt security for another debt security with the following additional characteristics (Bailey, P. 26.10):

- Both the sale and the purchase must be planned simultaneously, that is, each half undertaken in contemplation of the other and each half executed conditioned upon execution of the other.
- Both the sale and the purchase must be made on the same day, although settlement of the two transactions may occur on different dates.
- The sale and purchase must result in an increase in the net yield to maturity and/or an improvement in the quality of the bond held.
- The purchase must involve an investment graded bond that is better rated, equally rated, or no worse than one investment grade lower than the bond sold.

The accounting standards (NCGA Statement No. 6, which was adopted by GASB) provide PERSs with three acceptable methods for recording bond exchanges. Two of the three methods defer gains/losses and specify certain recording conditions. The acceptable methods that may be used to record bond exchanges by PERSs are (Bailey, p. 26.10 et. seq.):

- Completed transaction method - When the completed transaction method is used to account for gains and losses from the exchange of fixed-income investments, gains and losses are recognized at the exchange date (gains/losses are not deferred).
- Deferral/amortization method - Under the deferral/amortization method, the gain or loss on the exchange is deferred at the date of the exchange. Subsequently, the deferred gain or loss is amortized over the lesser of the (1) maturity date of the debt instrument sold or (2) maturity date of the debt instrument purchased. If the deferral/amortization method is adopted, it must be used consistently from period to period. Also, NCGA-6 notes that transactions should not be deliberately timed in a manner that results in the immediate recognition of gains and the deferral of losses.

- Cost pass-through method - If the cost pass-through method is used to account for gains and losses arising from the exchange of debt investments, the book value of the old debt investment is used as the basis for recording the new debt investment. To avoid the more or less permanent deferral of losses arising from exchanges (and to a lesser extent, gains arising from exchanges), there is a limit on the number of times an investment base (old investment) can be passed to a subsequent investment. NCGA-6 states that only two exchanges in the same investment stream may be deferred. If a third exchange takes place, the deferred gain or loss must be accounted for by using either the completed transaction method or the deferral/amortization method.

The example above illustrates the need for an accounting system that is capable of accumulating the data necessary to apply one of the deferral methods if a PRS decides to defer gains/losses resulting from bond exchanges. If the cost pass-through method is selected by a PRS, it must have some process in place that is capable of tracking exchange transactions over a long period of time.

The PRS may soon be required to use current value (market value) accounting for investments. The changes are a result of GASB Exposure Draft No. 107, parts a, b, and c. It will be issued as GASB Statement No. 25. If the GASB standard setting process remains on schedule, this statement will be effective for periods beginning after December 15, 1996. Early implementation will be permitted. This will require changes in the accounting systems at the PRS because investment transactions are now accumulated, classified, and summarized on the historical cost basis. GASB Statement No. 25 will also eliminate the ability to use deferral of gains/losses resulting from bond exchanges. GASB Technical Bulletin 94-1 requires full disclosure on all derivatives, including mortgage derivatives, purchased during the year.

Accounting for and reporting on derivatives transactions also requires specialized accounting and reporting processes. Derivatives transactions are usually more complex than traditional investment transactions. We anticipate changes in the way that derivatives transactions are reported and disclosed in future financial statements. These changes will likely require changes in entities' accounting and reporting processes. See Appendix for more information on derivatives.

The entity must establish a value for all investments. Accurate records must be maintained. This process includes:

- determination of acquired value including broker commissions and other fees
- determination of accrued interest paid during acquisition
- determination of acquired value of stock rights received in connection with stock purchases
- determination of discount or premium at acquisition date
- amortization of discount or premium

- determination of market value at least annually (reporting date) for GASB Statement No. 3 disclosure, to apply lower of cost or market (LCM) accounting principles, and for investment performance evaluations; market value should be determined at least monthly for monitoring purposes

Documents common to investment activity include (Note that this is only a list of documents. An entity may not use or receive all of these documents, depending on its operations):

- Transaction ticket
- Broker confirmation
- Custodian affirmation or statement
- Trade advice
- Purchase voucher
- Deposit voucher
- Trust receipt
- Copy of certificate, note, etc.
- Safekeeping receipt
- Deposit warrant or other Comptroller or State Treasury documentation
- Correspondence/appraisals
- Other items, depending on entity operations

General criteria applicable to financial reporting on investment balances are as follows:

- Investments reported on the balance sheet actually exist at that date (Existence Assertion).
- Investment accounts that should be included in the financial statements are included and there are no undisclosed accounts (Completeness Assertion).
- Investments represent assets to which the entity has legal rights or, if held in a fiduciary fund type, then the third party for which the investments are held has legal rights (Rights Assertion).
- Investments are included in the financial statements at appropriate amounts; investments are properly measured and allocated to the proper period (Valuation or Allocation Assertions).
- Investments are properly classified, described, and disclosed in the financial statements (Presentation and Disclosure Assertions).

Monitor the portfolio and the environment

The financial markets and factors affecting the markets are constantly changing. The investment management process should include systems to monitor the financial markets and the environment which affects the markets. The monitoring system should consider the following factors:

- Investment management and staff should communicate on a regular basis with investment advisors pertaining to issues or events that could affect the entity's portfolio.
- Performance of the investment advisors should be evaluated periodically.
- Activity in both the national and international financial markets should be monitored daily by the investment manager and staff.
- Investment personnel should perform ongoing monitoring of investment performance via written reports. This includes the use of independent pricing sources to determine the market value of investments.
- The investments manager and staff should be aware of national and international events that may have a positive or negative affect on the financial markets.
- A person(s) should be responsible for identifying new or changing laws and regulations that govern the financial markets.
- A person(s) should be responsible for identifying new or changing generally accepted accounting principles and reporting standards.
- A person(s) should be responsible for monitoring changes in state laws that may affect investment of the portfolio and state reporting requirements.
- A person(s) should be responsible for monitoring the portfolio to determine compliance with allocation/diversification requirements established by the entity and state law.
- Management should periodically review and assess investment portfolios to identify whether liquidity needs are met and to ensure that the appropriate investment mix is maintained. This should help ensure that investment strategies are followed and that investment decisions align with established goals and objectives.
- The monitoring system should include a mechanism for obtaining at least one independent pricing source to determine market values of investments in the portfolio.
- Portfolios should be independently analyzed to ensure that investments meet acceptable risk levels and expected rates of return established in the investment policy. This analysis should be performed by someone independent of the investment decision-making process.
- A person(s) should be responsible for periodically evaluating the risk level of the portfolio and comparing that to the investment objectives and policies.
- Periodically, written reports should be submitted to the governing board for review to determine if goals and objectives are being met.

The Governmental Accounting Standards Board (GASB) provides guidance for the disclosure of deposits with financial institutions and other investments in financial reports. This information is stated in GASB Statement No. 3.

Statement No. 3 disclosures are particularly concerned with informing financial statement users about the potential for losses associated with the custody of a government's deposits and investment securities (GASB, December 1991, p.2).

Statement No. 3 requires deposits and investments to be classified in three "categories of credit risk." The purpose of this classification is to inform financial statement users about the extent to which a government's deposits and investments are exposed to custodial credit risk. For purposes of applying Statement No. 3, custodial credit risk is the risk that a government will not be able (a) to recover deposits if the depository financial institution fails or (b) to recover the value of investment or collateral securities that are in the possession of an outside party if the counterparty to the investment or deposit transaction fails. Classification in category 1 indicates that the exposure of deposits or investments to potential custodial risk is low. The level of potential custodial credit risk is higher for deposits and investments classified in category 2, and highest for those in category 3 (GASB, December 1991, p.2).

The paragraphs above present very basic information pertaining to Statement No. 3. An entity's investment management process should include a thorough understanding of Statement No. 3 for reporting purposes and also for assessing custodial credit risk. GASB has issued an implementation guide called *Guide to Implementation of GASB Statement 3 on Deposits with Financial Institutions, Investments (including Repurchase Agreements), and Reverse Repurchase Agreements.* This guide is very useful in applying the Statement.

Entities with large investment portfolios often link to one or more of the national financial networks, such as Bloomberg Financial Market Reporting Service, Stock Val, and First Call. Investment managers and staff use these services as an aid to monitor current holdings, activity in the financial markets, and daily financial news that may affect investment decisions. These networks provide the ability to quickly price stocks, bonds, and other investment instruments. They also have the capability to perform complex financial calculations. The Stock Val network will create charts, graphs, and other analytical tools that facilitate investment decision-making. The First Call financial service has on-line, in-depth, daily news pertaining to the financial markets similar to what appears in the Wall Street Journal.

Reevaluate the investment management process

Investment performance is the return on invested capital over a specific period of time (monthly, quarterly, year to date, annual, etc.). It is the total return of the fund or segment of the fund (including income, capital gains and losses, and unrealized gains and losses) and is calculated on the basis of the market value at the end of each time interval (Texas Pension Review Board, p. 84).

The results of the calculation, however, should never be used as a score card in comparing the investment results of one portfolio to others. Each has unique characteristics, and its performance should be viewed within the context of (Texas Pension Review Board, p. 84):

- the type of retirement plan
- the funded status of the retirement plan (for other funds, the type of funds -- long-term vs. short-term, operating vs. nonoperating)
- the achievement of investment goals consistent with appropriate risk parameters
- the comparison of the results to those generally available in the marketplace, and achieved by other similarly structured funds,
- and the recognition that different investment philosophies may produce significantly different results at any given point in time

Obviously, the information provided above is applicable to performance of pension investment portfolios. However, the last three points are applicable to other types of investment portfolios. The main point in evaluating the performance of an investment portfolio is that the evaluator cannot ignore the entity's goals, risk parameters, and investment philosophies during the evaluation process. Appropriate benchmarks and similarly structured entities must be used in the evaluation process.

Some examples of measures that could be used in the monitoring process are:
- Dollar weighted rate of return
- Time weighted rate of return
- Comparison of return on investments to market indices (S&P 500, Dow Jones Industrial Average, etc.)

The **return on investment (ROI)** on the total account is an analytical tool which is vital to interpreting investment performance. The two most widely used and accepted methods are the **dollar weighted** rate of return and the **time weighted** rate of return (Texas Pension Review Board, p. 89).

The **dollar weighted rate of return** is also known as the **discounted cash flow** or **internal rate of return.** This method reflects the combined effect of additions to and withdrawals from the fund. A drawback to the dollar weighted method is that it will be equal to the time weighted method only if there is no cash flow during the interval being measured. Since cash flows are different for each pension plan, and since the effect of cash flows are eliminated from market indices, it is inappropriate to use the dollar weighted rate of return for comparisons to other pension plans and to market indices (Texas Pension Review Board, p. 89).

The **time weighted rate of return** eliminates the effect of cash flows, providing a uniform technique for comparing investment performance results between pension plans and to market indices. This is why the Financial Analysts Federation requires time weighted return calculations for performance comparisons between investment managers. (Texas Pension Review Board, p. 89).

Evaluation of the investment management process is difficult in entities that have multiple investment classes and high volume cash flows during a period. Many

entities obtain the services of a consultant who specializes in evaluating the performance of investment portfolios. Some entities, such as the Employees Retirement System of Texas and the Teacher Retirement System of Texas, are required by statute to obtain an independent consultant to evaluate investment performance.

Assess Condition:
Determine the actual process used

Conduct interviews, observe operations, and identify and collect available documentation in order to gain an understanding of the entity's actual investment process and controls. Included in the actual process are both official/formal and unofficial/informal processes and controls. A process may exist even if it is not documented. Possible procedures include, but are not limited to:

- Determine where the investment management process resides in the entity, who participates in the process, and how the participants are selected.
- Obtain and review any manuals, policies, and forms that could document any phase of the investment management process, including its relationship to entity goals, objectives, strategies, and plans.
- Determine if and how management consciously selects and employs the assumptions, criteria, methods, processes, and techniques used in the investment management process. Obtain and review available documentation on the assessment of risks, costs, and benefits.
- Determine how the entity develops its investment management process and identify the relationship of the process to the strategic plan.
- Review agreements with the custodian bank and information relating to the custodian's subcontractors (DTC, BTC, etc.).
- Review the securities lending agreement, if applicable.
- Review and document the process for valuation of investments (both cost and market values).
- Obtain information on the process the entity uses to review and evaluate its investment management process.

As part of gaining an understanding of the investment management process, consider the need to question investment policy practices. A specific example of this might be an entity's policy on the purchase of derivatives.

In addition to gaining an understanding of the actual investment management process, also try to find out:

- how the participants view the actual process
- what parts of the process they see as successful or unsuccessful, and why
- what they think is important about the process, and why

This information may help identify causes and barriers.

Determine the strengths and weaknesses of the actual process

Using the tailored criteria, the understanding of the entity's process gained above, and the procedures in this section, analyze the actual process to determine if it:

- is designed to accomplish the management objective(s) (this module, page 1)

- has controls that provide reasonable assurance that the process will work as intended
- is implemented and functioning as designed
- is actually achieving the desired management objective(s)

Suggested procedures for each of these four analysis steps are detailed below. In executing these procedures, remember to identify and analyze both strengths and weaknesses.

Identify and review the steps in the actual process to determine if the process is designed to accomplish the management objective(s). Possible procedures include, but are not limited to:

- Determine if all major steps in the criteria are included in the actual process. If steps are missing, determine if their absence is likely to have a materially negative effect on the investment management process at the entity you are reviewing.
- Determine if all the steps in the process appear to add value. If there are steps that do not appear to add value, try to get additional information on why they are included in the process.
- Review the order of the steps in the process to determine if it promotes productivity.
- Review the level of technology used in the process to determine if it is up-to-date and appropriate to the task. Besides computer, electronic, communications, and other mechanical technology, you should also consider what kinds of management technology are used (Gantt charts, process maps, decision matrices, etc.).

See the appendix to the module on Problem-Solving and Decision-Making for more information.

Identify the controls over the process to determine if they provide reasonable assurance that the process will work as intended. These controls should be appropriate, placed at the right point(s) in the process, timely, and cost effective. Possible procedures include, but are not limited to:

- Draw a picture of the process, the controls, and the control objectives (see the graphic of the procurement process in the Introduction for an example). Flowcharts of the investment management process can help identify inputs, processes, and outputs.
- Determine if the control objectives are in alignment with the overall management objective(s) (this module, page 1).
- Identify the critical points of the process (i.e., those parts of the process most likely to determine its success or failure or expose the entity to high levels of risk) and the controls related to them. Consider whether the controls are:
  - in the right location within the process (input, operations, output)
  - timely (real time, same day, weekly, etc.)

- Compare the cost of the control(s) to the risk being controlled to determine if the cost is worth the benefit.
- Determine what controls are in place for monitoring and evaluating the overall effectiveness of the investment management process and making sure that changes are made in the process if it does not yield the desired results.
- Review contractual agreements between investment manager(s) and entity for compliance.
- Review and monitor investment portfolio performance to ensure that agreed-upon results and benchmarks are met.
- Determine and evaluate safeguards over investments held by the custodian or the custodian's subcontractors (DTC, BTC, etc.).
- Review the reconciliation process between the entity's records and those maintained by financial institutions, the Treasury, the Comptroller, or other custodians. Determine who prepares and reviews the reconciliations and whether reconciling items are investigated on a timely basis.
- Determine if separation of duties between persons having the authority to initiate transactions, approval of purchases and sales of assets, custody of assets, record keeping, and preparation of reconciliations exist.
- If electronic data processing is used, determine whether segregation of duties is maintained within processing activities.

Review observations, interviews, documentation, and other evidence, and design specific audit procedures as needed to determine if the process and/or the controls have been implemented and are functioning as designed. Depending upon the objectives of the project, these procedures may include both tests of controls and substantive tests. Possible procedures include, but are not limited to:

Tests of Controls

- Determine if any evidence of management override exists.
- Walk through the actual process, i.e., follow a transaction through the people and documents involved, and compare to the official process.
- Assess whether the separation of duties between the selection of investment managers and the evaluation and recording of investment results is adequate.
- Select a sample of reconciliations and determine that they are prepared and reviewed by appropriate personnel, performed on a timely basis, and reconciling items are investigated adequately.
- Obtain and document independent audit reports on the condition of the custodian's internal control structure.
- Select a sample of investment transactions and trace to supporting documentation. Note the following:

- registration in the name of the entity, commission/board, or authorized nominee
- proper approval by the designated, responsible agency officials
- proper documentation (See the "Record and Report Investment Transactions" specific criteria in this module)
- agreement between transaction data (proper amount, account number, name of security, issue and maturity dates, interest rates, etc.)
- math accuracy of all computed amounts
- proper posting to ledgers
- proper inclusion on income anticipation ledgers
- proper allocation of proceeds to correct fund in sale transactions
- reasonableness
- investment is authorized and in compliance with applicable state laws and is on list of approved investments
- disposition of proceeds from sales are in accordance with any applicable statutes or agency policies
- write-offs are properly authorized and disposed of

• Review the achieved rate of return, and compare that to the expected rate of return in the investment policy. If returns are higher than expected, consider whether additional risk has been assumed.

Substantive Tests (Tests of management's assertions)

• **Existence:** can be tested by physical inspection and count when the securities are located at the entity. When the securities are in the custody of outside parties such as a custodian bank, a written confirmation can be obtained. When a confirmation is used, the auditor should obtain information regarding the custodian's responsibility and financial stability.

• **Completeness:** can be tested by physical inspection and count or by confirmation with outside custodians. A test of year-end reconciliations of bank balances, Treasury balances, or other custodian balances to the year-end general ledger balances is an effective procedure. Another efficient means of testing is to perform analytical procedures on the investment accounts/classes. Trend analysis and reasonableness tests based on expectations and relationships with other financial statement accounts are effective procedures.

The main idea of these tests is to compare the investment assets/custody to the entity's accounting records or calculations of dollar amounts that should be reported.

• **Rights and obligations:** can be tested by inspection of securities that are in the custody of the entity. If the securities are in the custody of outside parties, the auditor should verify that they are registered in

the name of the entity or its authorized nominee. This can be done by examining custodian affirmations and statements.

It is important that all interested parties, including the auditor, understand the terms/characteristics/cash flows of new or unusual types of securities. An example of this would be the addition of derivatives to a portfolio. The financial markets offer many derivatives products to investors. Derivatives transactions are complex. Each derivatives product has its own unique characteristics and payment rules (which affects cash flow and yield).

An entity's management may be unaware of certain rights, obligations, or risks pertaining to new or unusual investment products if an effort was not taken to fully understand the investment transaction. The auditor should understand new or unusual transactions well enough to identify issues that could affect the financial statements, liabilities/obligations that are not disclosed, or matters that could significantly affect the operations of the entity.

- **Valuation and allocation:** can be tested by vouching investment cost to broker confirmations or other evidence of cost. This may be done in conjunction with internal control testing of investment transactions. Other evidence can be gained by verifying the accuracy of balances, schedules, and subsidiary ledgers. The use of analytical procedures is an efficient way to gain assurance that valuation is reasonable. If premium and discount amortization is significant, test a sample of calculations for accuracy and verify that the entity is using the interest method of amortization in accordance with GAAP.

  Market value should be tested to determine if investments should be written down (apply the lower of cost or market principle). Market value of many investments such as domestic stocks and U.S. securities are quoted in local newspapers, Wall Street Journal, and other sources. The market value of some investment classes are not as readily available. These include corporate bonds, mortgage pass-through securities, international stocks and ADRs, collateralized mortgage obligations, and derivatives products.

  In cases where quotations of market value are not readily available, the auditor will have to use other sources. A source for obtaining market values is one of the national financial networks such as Bloomberg Financial Market Reporting Service, Stock Val, First Call, or other well-known networks. Another source may be brokerage firms if the auditor is able to find a reputable firm that is willing to help value investments.

If fair value has been determined in good faith by the entity's board of trustees or other designated party, the auditor does not substitute his or her judgment for that of the trustees or other designated party because the auditor is not an appraiser or investment banker. In establishing the scope of the work and when selecting transactions for testing, the auditor should take into consideration the increased complexity inherent in valuing many of the new forms of investments. Procedures that the auditor should consider applying include (AICPA, p. 7.12):

- Reviewing and evaluating the entity's methods and procedures for estimating the fair value of investments.
- Determining whether the plan's methods and procedures for estimating fair value were followed.
- Testing the underlying documentation supporting the estimates.
- Applying the procedures in SAS No. 11, *Using the Work of a Specialist*. With entities making significantly more investments in nonreadily marketable, specialized, or unique investments, the need to engage a valuation specialist is increasing. The auditor should follow the requirements of SAS No. 11.
- Inquiring if the entity's board of trustees, administrative committee, or other designated party has reviewed and approved estimates of the fair value of the entity's investments, and reading supporting minutes or other documentation.

• **Presentation and disclosure:** can be achieved by using a system of *inquiry* to determine the nature of investments, the reasons for holding them, and management's expressed intention as to the classification of securities as short-term or long-term. This information can be compared to the investment policy and investment strategies. The financial statements and notes to the financial statements should be compared to all authoritative literature that comprise generally accepted accounting principles.

Review all significant reclassifications and adjustments related to investments. Review the investments note and determine that all requirements of GASB Statement No. 3 are met. Market valuations disclosed in the investment note should be tested (see valuation and allocation assertion above). This can be done by selecting a sample of specific investment holdings (stocks, bonds, etc.) and comparing the market price reported by the entity to quoted market values in financial publications (Wall Street Journal, Standard & Poor's, etc.).

Many of the audit procedures listed above for tests of controls and substantive tests can be performed efficiently and effectively with the use of Computer Assisted Audit Techniques (CAATs). Some of the CAATs software audit capabilities are:

- computations
- data extraction and reformatting
- data analysis
- sampling
- summarization
- stratification
- sorting
- file comparison
- file creation
- statistical analysis

Some specific examples of how CAATs support is used in auditing investments follows:

- An index of stock holdings that lists all of the stocks recorded by the entity and includes the stock market ticker symbol and company name
- A report that stratifies stock and bond transactions by amount, using several strata levels
- A report which lists all bond transactions and identifies each transaction as a purchase, sale, or redemption
- A list of all bond exchange transactions
- A report which lists all stock transactions and includes information such as total cost, cost per share, number of shares transacted, company name, and type of transaction (sale, purchase, etc.)
- A report that stratifies bond transactions by transaction type and several levels of book value amount
- A report that lists all material bond and stock transactions (transactions that are less than a pre-determined amount are excluded)
- A report which totals investment income for each investment class
- A Dollar-Unit Record-Based sample of investment revenues
- A report which stratifies short-term investments by type and amount
- A list of all short-term investment transactions

Some examples of ways that the reports above could be used are to:

- identify large or unusual transactions
- identify unusual stratifications
- summarize transactions by investment class and perform trend analysis
- select non-statistical samples for testing
- select statistical samples for testing
- verify completeness of investment class populations
- summarize total purchases and sales by investment class which is helpful in performing analytical procedures
- identify transactions that require specialized accounting treatment (i.e. bond exchanges, derivatives transactions, etc.)

Review and analyze any reports used by the entity to monitor the outcome(s) of the investment management process and/or any other information available to determine

if the process is actually achieving the desired management objective(s) (this module, page 1). Possible procedures include, but are not limited to:

- Analyze these process reports over time for trends.
- Discuss any apparently material negative or positive trends with management.
- Determine if and how management acts upon these trend reports and what changes, if any, were made in the process or controls as a result. Some process refinements, especially those affecting entity mission, goals, and outcome measures, may need to wait until the next appropriation cycle.

Determine causes

Determine what circumstances, if any, caused the identified weaknesses in the investment management process. Possible procedures include, but are not limited to:

- Determine if the participants in the investment management process understand the entity's mission, goals, and values and support them through their management of the investment management process.
- Determine if the participants understand both the purpose of and their role in the investment management process.
- Determine if the relationship between the investment management process and other entity processes is clear.
- If the process occurs at multiple locations, determine the nature and scope of the communication and coordination among them.
- Determine if the investment management process has adequate human, dollar, time, information, and asset resources. If they appear inadequate, determine if the entity resources have been allocated according to the materiality of the investment management process relative to other entity processes.
- Determine if the entity has considered using alternative resources such as trade groups, non-profit organizations, academic institutions, or other governmental entities to meet its resource needs.
- Determine if resources available to the investment management process have been allocated and used in a manner consistent with the importance of that resource to the investment management process.
- If there are negative trends in the reports used to monitor the outcome(s) of the investment management process, determine if these reports are communicated to and used by the appropriate parties to modify the process.

Determine what internal or external constraints or barriers, if any, must be removed in order to overcome these identified weaknesses. Possible procedures include, but are not limited to:

- Review the applicable entity, state, or federal laws or regulations to determine if any of them prevent the necessary changes from being made in the process.

- Determine if any key employees are unwilling to change the process and why they are unwilling.

Determine effect

Compare the actual entity process to a recommended alternative process(es) and determine if each weakness in the entity process is material. Alternatives can be developed by using the criteria contained in this module, applying general management principals to the process, using the processes at comparable entities, etc. Materiality can be measured by comparing the dollar cost, impact on services (either quantity or quality), impact on citizens, impact on the economy, risks, etc. of the actual process to the recommended alternative process(es). Measurements can be quantitative, qualitative, or both. Possible procedures include, but are not limited to:

- Identify performance benchmarks (industry standards, historical internal data, other comparable entities, etc.) for the process in question and compare to actual performance. Measure the difference, if possible. Include the cost of the additional controls or changes in the process.
- Estimate the cost of the actual process and the alternative process(es) and compare.
- Estimate the quantity and/or quality of services provided by the actual process and by the alternative process(es) and compare.
- Identify the risks associated with the actual process and with the alternative process(es). Measure and compare the risks.

Develop recommendations

Develop specific recommendations to correct the weaknesses identified as material in the previous section. In developing these recommendations, consider the tailored criteria, kind of process and control weaknesses identified, causes and barriers, effects, and additional resources listed at the end of the this module. Possible procedures include, but are not limited to:

- Identify alternative solutions used by other entities.
- Identify solutions for removing barriers.
- Provide general guidelines as to the objectives each solution should meet. The entity can then tailor the solution to its specific situation.
- Provide specific information, if available, on how each recommendation can be implemented.

RESOURCES

Articles

AICPA. "AICPA Encourages Better Understanding of Derivatives." *The CPA Letter* 74:6:1-3, July/August 1994. Location: SAO Library; Methodology Project Information Folder.

Davis, Henry. "Portfolio Risk - Staying Out of Harm's Way." *Government Finance Review* 30-31, February 1992. Location: Methodology Project Information Resources Folder.

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Reed, Roy E., Jr. "Auditing Pension Plan Investments." *Internal Auditor* 60-63, October 1993. Location: Methodology Project Information Folder.

Books

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Banks, Erik. *Complex Derivatives - Understanding and Managing the Risks of Exotic Options, Complex Swaps, Warrants and Other Synthetic Derivatives*. Chicago, Illinois: Probus Publishing Company, 1993.

Fabozzi, Frank J. and T. Dessa Fabozzi. *Current Topics in Investment Management*. New York, New York: Harper & Row Publishers, 1983. Location: Methodology Project Information Resources Folder.

Fabozzi, Frank J., et al. *Collateralized Mortgage Obligations: Structures and Analysis*. USA: Frank J. Fabozzi & Associates, 1993. Location: SAO Library.

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Little, Jeffrey B. and Rhodes, Lucien. *Understanding Wall Street*. Liberty House, 1987. Location: Methodology Project Information Resources Folder.

Miller, Girard. *Investing Public Funds*. Chicago, IL: Government Finance Officers Association, 1986. Location: SAO Library.

Rosenberg, Jerry M. *The Investor's Dictionary*. John Wiley & Sons Inc., 1986. Location: The University of Texas, Perry Castañeda Library (HG 4513 R67 1986 REF)

Texas Pension Review Board. *BIENNIAL REPORT, VOLUME II, Asset Management and Performance Measurement--Review and Guide for Texas Public Pension Plans*. Texas

Pension Review Board, 1990. Location: Methodology Project Information Resources Folder.

Data Bases

Uniform Statewide Accounting System (USAS)
State Real Property Inventory Data Base
Statewide Consolidation
Cash Management System
Statewide Property Inventory Data Base

Human Resources

The following staff members have specialized training or ongoing interest in investments:

SAO Employee	Title/Function
Roger Ferris, CPA David Gaines, CPA Terry Harris, CPA Karl Johnson, CPA Diane Oldroyd, CPA Carol Smith, CPA Bill Wood, CPA	Points of Contact
Terry Harris, CPA Rachel Cohen, CPA	Module Writers/Editor
Bill Wood, CPA Karl Johnson, CPA Diane Oldroyd, CPA Charlie Hrncir, CPA Barbara Hankins, CPA	Reviewer(s)
Will Hirsch, CPA Charles Hrncir, CPA Catheryn Smock, CPA	Upper Reviewers

Periodicals

Note: Indexes and abstracts of periodicals in bold-faced type are available in the SAO Library via ABI/INFORM.

Accounting Review
Published monthly by the American Accounting Association
Location: The University of Texas, Perry-Castañeda Library (HF 5601 A6)

Accounting Today

Published biweekly by Lebhar Friedman, Incorporated
Location: SAO Library

American Banker
Published daily by American Banker
Location: The University of Texas, Perry-Castañeda Library (FILM 4070)

Appraisal Journal
Published monthly by the American Institute of Real Estate Appraisers
Location: The University of Texas, Perry-Castañeda Library (333.3 AM3)

Barron's National Business and Financial Weekly
W. Barron, Incorporated
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Black Enterprise
Published monthly by E.G. Graves Publishing Company of New York
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Business Insurance
Published weekly by Crain Communications of Chicago
Location: The University of Texas, Perry-Castañeda Library (HG 8001 B87)

Business Week
Published weekly by McGraw-Hill, Incorporated
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Published monthly by the New York Society of Certified Public Accountants
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Euromoney
Published monthly by Euromoney Publications of London, England
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Financial Analysts Journal
Published bimonthly by the Financial Analysts Federation
Location: The University of Texas, Perry-Castañeda Library (332.605 AN13)

Financial Management
Published quarterly by the Financial Management Association
Location: The University of Texas, Perry-Castañeda Library (HG4001 F55)

Financial World
Published biweekly by Macro Communication of New York
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Published monthly by Institutional Investor, Incorporated
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Published quarterly by Warren, Gotham, and Lamont
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Journal of Finance
Published monthly by the American Finance Association
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Journal of Financial Research
Published quarterly by the School of Business Administration, Georgetown University
Location: The University of Texas, Perry-Castañeda Library (HG 1 J683)

Journal of Futures Markets
Published quarterly by J. Wiley in affiliation with the Center for the Study of Futures Markets, Columbia University
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Published monthly by Ohio State University Press
Location: The University of Texas, Perry-Castañeda Library (332.05 J829)

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Published quarterly by Institutional Investor Systems of New York
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Published monthly by Straker Brothers, Limited (UK)

Location: The University of Texas, Perry-Castañeda Library (HF 5686 C8 C684)

Management Science
Published monthly by the Institute of Management Sciences
Location: The University of Texas, Perry-Castañeda Library (658.05 M312)

Money
Published monthly by Time, Incorporated
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Mortgage Banking
Published monthly by the Mortgage Bankers Association of America
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Pension and Benefits Update
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Pensions & Investments
Published monthly by Crain Communications of Chicago
Location: The University of Texas, Perry-Castañeda Library (HD 7106 U5 P425)

Pension World
Published monthly by Communication Channels, Incorporated of Chicago
Location: The University of Texas, Perry-Castañeda Library (HD 7106 U5 P39)

Wall Street Journal
Published daily by Dow Jones & Company
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Professional Associations

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Association For International Investment
Washington, D.C.
(202) 659-1903

Financial Management Association
Tampa, Florida
(813) 974-2084

Financial Managers Society
Chicago, Illinois
(312) 578-1300

Governmental Accounting Standards Board
Norwalk, Connecticut
(203) 847-0700

Government Finance Officers Association of U.S. and Canada
Chicago, Illinois
(312) 977-9700

Investment Company Institute
Washington, D.C.
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Investment Counsel Association of America
New York, New York
(212) 344-0999

Investment Management Consultants Association
Denver, Colorado
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Investment Education Institute
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(313) 543-0612

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Washington, D.C.
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National Association of Government Deferred Compensation Administrators
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SAO Report 95-028: *Review of Odessa College Investments*
SAO Report 95-035: *Derivative Investments by Texas State Entities*

Texas Comptroller of Public Accounts: *1993 Comprehensive Annual Financial Report (CAFR)*
Teacher Retirement System of Texas: *1993 Comprehensive Annual Financial Report*
Employees Retirement System of Texas: *1993 Comprehensive Annual Financial Report*

Office of the Attorney General (State of Texas): *Letter Opinion No. 94-052, June 9,1994*
Office of the Attorney General (State of Texas): *Opinion No. DM-274, December 10, 1993*

U.S. General Accounting Office (GAO): *Financial Derivatives - Actions Needed to Protect the Financial System, May 1994*

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