Regulatory Bulletin

RB 32-24

Handbook: **Thrift Activities**

Subject: **QTL; Earnings**

Sections: 270, 410, 440

Thrift Activities Regulatory Handbook Update

Summary: This bulletin provides updates to the following Thrift Activities Regulatory Handbook Sections: 270, Qualified Thrift Lender Test; 410, Financial Records and Reports; and 440, Present Value Analysis. Please replace the existing handbook sections with the enclosed revised sections. We rescind RB 32-9 dated January 28, 1999, with the issuance of this bulletin.

For Further Information Contact: Your Office of Thrift Supervision (OTS) Regional Office or the Supervision Policy Division of the OTS, Washington, DC. You may access this bulletin at our web site: www.ots.treas.gov.

Regulatory Bulletin 32-24

SUMMARY OF CHANGES

OTS is issuing updates to the following Thrift Activities Handbook Sections. Change bars in the margins of the handbook sections indicate revisions. We provide a summary of all substantive changes below.

270   QTL

Small Business Loans: Adds change in definition of small business loan.

Penalties: Removes as a prohibition obtaining new FHLBank advances and the accompanying restriction to repay any FHLBank advances. Revises the remaining restriction to dispose of any investment when failing to meet the test.

Procedures: Adds to the first objective and No. 5 "achieving or maintaining QTL or DBLA status." Adds to No. 15 to include in the examination report a "third failure."

Appendix C: Adds footnote to Line 5 of the instructions to deduct mortgage-servicing assets for QTL. Removes from line 4 references to OTS' rule on Liquidity at § 566.1. Line 4 uses new statutory language "cash and marketable securities" to define liquid assets. Line 14 uses new definition of small business loans in 12 CFR § 560.3.

410   Financial Records and Reports

Risk-Focused Review: Adds heading.

Regulatory Requirements: Adds a new heading and a new paragraph that discusses the accessibility of records for examinations. Adds a new subsection regarding associations changing the location of accounting or control records. Consolidates the Books and Records sections.

Thrift Financial Reports: Includes revisions pertaining to the Electronic Filing System and the availability of the TFR Instructions on the Internet.

References: Adds OTS's Directors' Guide to Management Reports.

440   Present Value Analysis

Compound Accumulation: Adds heading.

Present Value Analysis: Adds heading.

Discounting a Constant Amount Per Each Period: Omits Problem 9.

Renegotiation of Existing Loans: Adds reference to SFAS Nos. 114, 118, and 121.

Participation Loan Sale: Omits.

Yield on Remaining Portfolio: Omits section and Problem 21.

Gains or Losses on Participations Sold: Omits section and Problem 22.

Adjustment of the Gain or Loss by a Reinvestment Rate Assumption: Omits section and Problem 23.

Portfolio Valuation: Revises introductory discussion of APB No. 16 as amended.

References: Adds SFAS Nos. 114, 118, and 121.

Appendix B: Omits Problems 9 and 21 through 23.

—Scott M. Albinson
Managing Director, Supervision

INTRODUCTION

To be a Qualified Thrift Lender (QTL), an institution must either meet the Home Owners' Loan Act (HOLA) QTL test or the Internal Revenue Service (IRS) tax code Domestic Building and Loan Association (DBLA) test.

Savings associations may use either test to qualify and may switch from one test to the other. OTS has placed no limitations on the election except to require that the association must meet the time requirements of the respective test, that is, nine out of the last twelve months or the taxable year. According to the IRS, a taxable year may be either a calendar or fiscal year.

QUALIFIED THRIFT LENDER TEST

Under the QTL test, an institution must hold Qualified Thrift Investments (QTI) equal to at least 65 percent of its portfolio assets. The ratio of an institution's QTI divided by its portfolio assets is the institution's actual thrift investment percentage (ATIP). QTI must fall into one of the two following categories:

- Assets that are includable in QTI without limit.

- Assets limited to 20 percent of portfolio assets.

Portfolio assets are total assets minus goodwill and other intangible assets, office property, and liquid assets not exceeding 20 percent of total assets. An institution ceases to be a QTL when its ratio of QTI (numerator) divided by its portfolio assets (denominator) falls, at month end, below 65 percent for four months within any 12-month period.

Assets that are includable as QTI without limit:

- Loans (including qualifying real estate owned as a result of such loans) to purchase, refinance, construct, improve, or repair domestic residential or manufactured housing.

- Home equity loans.

- Educational loans.

- Small business loans.

- Loans made through credit cards or credit card accounts.

- Securities backed by or representing an interest in mortgages on domestic residential or manufactured housing.

- FHLB stock.

- Obligations of the FDIC, FSLIC, RTC, and the FSLIC Resolution Fund (depending on the date of the issue of such obligations).

Assets that are includable as QTI up to 20 percent of portfolio assets:

- Fifty percent of the amount of domestic residential housing mortgage loans originated and sold within 90 days. An institution may, on a consistent basis, include as QTI either the sales amounts from a previous quarter or the previous rolling 90 days or three-month period.

- Investments in a service corporation that derives at least 80 percent of its gross revenues from activities related to domestic or manufactured residential housing.

- Two hundred percent of the amount of loans and investments in "starter homes."

- Two hundred percent of the amount of certain loans in "credit-needy areas."

- Loans for the purchase, construction, development, or improvements of "community service facilities" not in credit-needy areas.

- Loans for personal, family, or household purposes (other than those reported in the assets includable without limit category).

- FNMA and FHLMC stock.

Domestic Building and Loan Association Test

To be a QTL under the DBLA test (IRS regulation 26 CFR § 301.7701-13A), an institution must meet a "business operations test" and a "60 percent of assets test."

The business operations test requires the business of a DBLA to consist primarily of acquiring the savings of the public and investing in loans. An institution meets the public savings requirement when it meets one of two conditions:

- The institution acquires its savings in conformity with OTS rules and regulations.

- The general public holds more than 75 percent of its deposits, withdrawable shares, and other obligations. The general public may not include family or related business groups or persons who are officers or directors of the institution.

An institution meets the investing in loans requirement when more than 75 percent of its gross income consists of interest on loans and government obligations, and various other specified types of operating income that financial institutions ordinarily earn.

The 60 percent of assets test requires that at least 60 percent of a DBLA's assets must consist of assets that thrifts normally hold, except for consumer loans that are not educational loans. The DBLA test does not include, as the QTL test does to a limited or optional extent, mortgage loans originated and sold into the secondary market and subsidiary investments.

See Appendix A for the Internal Revenue Code statutory definition of domestic building and loan association (26 USCA § 7701(a)(19)). See Appendix B for the IRS's implementing regulation defining domestic building and loan association (26 CFR § 301.7701-13A).

BACKGROUND

Congress first established the QTL test as part of the Competitive Equality Banking Act of 1987 (CEBA). Effective January 1, 1988, the Federal Home Loan Bank Board implemented the CEBA

provisions. This required all thrift institutions to invest at least 60 percent of their tangible assets in certain housing and related investments to maintain QTL status.

Congress amended the QTL test as part of the Financial Institutions Reform, Recovery and Enforcement Act of 1989 (FIRREA) and raised the required ATIP to 70 percent. The statute phased in the changes over a two-year period. On August 9, 1990, new penalty provisions for failing the QTL test became effective and on July 1, 1991, the remainder of the FIRREA changes became effective.

The Federal Deposit Insurance Corporation Improvement Act of 1991 lowered the required ATIP to 65 percent and changed the computation period from a required weekly average to a required maintenance period of 9 out of 12 immediately preceding months.

The Economic Growth and Regulatory Paperwork Reduction Act of 1996 (EGRPRA) amended the QTL requirements to give thrifts a choice of tests. A thrift must qualify either by meeting the HOLA QTL test, as amended by the EGRPRA, or by meeting the IRS's DBLA tax code test. The EGRPRA amended the QTL test to allow:

- Educational loans, small business loans, and credit card loans to count as QTIs without limit.

- Loans for personal, family, or household purposes (other than those included in the without limit category) to count as QTI in the category limited to 20 percent of portfolio assets.

Exceptions

Section (m)(2) of the HOLA authorizes the OTS to grant temporary and limited exceptions from compliance with the QTL test. OTS may grant exceptions when extraordinary circumstances exist, or to significantly facilitate an acquisition under §13(c) or §13(k) of the Federal Deposit Insurance Act (FDIA).

Section (m)(2)(A) of the HOLA presents an example of an extraordinary circumstance: when the effects of high interest rates reduce mortgage demand to such a degree that an insufficient

opportunity exists for a savings association to meet the QTL requirement. Also, Thrift Bulletin 71, Serving Communities Affected by Natural Disasters, explains that within the constraints of safety and soundness and statutory requirements, the OTS will facilitate savings association efforts to assist communities affected by a natural disaster. In doing so, the OTS may temporarily waive the QTL requirement to allow capital compliant institutions to help rebuild non-QTL businesses.

Section 13(c) of the FDIA authorizes the FDIC to provide financial assistance to facilitate a merger or consolidation of a troubled insured depository institution. Section 13(k) of the FDIA sets forth criteria for such emergency acquisitions of troubled institutions. When granting an exception to significantly facilitate a § 13(c) or §13(k) acquisition, the OTS must determine the following:

- The acquired association will comply with a 51-month incremental phase-in transaction period (see §§(m)(2)(B)(ii) and (m)(7)(B) of the HOLA).

- The exception will not have an undue adverse effect on competing savings associations in the relevant market and will further the purposes of the QTL test.

DEFINITIONS OF QTL TERMS

An institution must be able to demonstrate that items being counted as QTI meet the specific definitions set forth below:

Acquisition, Development, and Construction (ADC) Loans

Associations may include ADC loans in QTI without limit provided the association is reasonably certain the property will become domestic residential housing. Moreover, to count as QTI, an ADC loan must meet at least one of the following criteria:

- The loan is for property zoned exclusively for residential use.

- The loan is for property zoned to permit residential use and there are restrictions in the

deed to the property that limit its use to primarily residential dwellings.

- The borrower will construct dwellings immediately on nearly all the residentially zoned property.

Community Service Facilities

Community service facility means churches or other places of worship, schools, nursing homes, hospitals, and facilities serving similar functions within a community.

Domestic Housing

This term refers to housing located within the 50 states, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, and the Pacific Islands.

Loans To Credit-Needy Areas

A credit-needy area is a geographic area or neighborhood in which the credit needs of the low- and moderate income residents are not being adequately met. This includes any census tract or block numbering area delineated by the United States Bureau of the Census where median income is less than 80 percent of the area median income. Area median income means the median family income for a Metropolitan Statistical Area (MSA), or the statewide non-metropolitan area if located outside an MSA.

A credit-needy area may also be an area that meets either of the following criteria:

- An area targeted for redevelopment by a federal, state, tribal or local government that also receives some form of financial assistance from the federal, state, tribal or local government.

- Identified as credit-needy through consultations with local government and community representatives. These determinations will be subject to review for reasonableness during examinations.

In addition, if the loan is for a small business or a "community service facility" the association may

classify it as a loan to a credit-needy area if it meets one of the following criteria:

— The loan is to a community service facility or a small business within the credit-needy area.

— The loan is to a small business owned by an individual whose home address is within the credit-needy area.

— The loan is to a community service facility that primarily serves individuals whose homes are within the credit-needy area.

For example, under the first criteria, a loan to a community center, school, or small business in a credit-needy area would qualify. Under the second, a small business loan to a person living in a credit-needy area but whose business is not within such an area would qualify. Finally, under the third criteria, loans to hospitals, churches or school dormitories that have clientele, the majority of who live in credit-needy areas, would qualify.

Manufactured Housing

Manufactured housing has the same meaning as defined by the National Manufactured Home Construction and Safety Standards Act in 42 USC Section 5402(6):

A structure, transportable in one or more sections, that in traveling mode measures at least eight feet by forty feet, or when erected is at least 320 square feet, and that is built on a permanent chassis and designed to be used as a dwelling with or without a permanent foundation when connected to the required utilities, and includes the plumbing, heating, air-conditioning, and electrical systems contained therein.

Mutual Funds

An institution may count mutual fund investments as QTI on a pro rata basis to the same extent that the underlying investments are eligible as QTI if the institution invested directly in the underlying investments. The mutual funds must also meet the other standards set forth in HOLA § 5(c)(1)(Q).

Residential Housing

For QTL purposes, residential housing includes OTS's regulatory 12 CFR Part 541 definitions of "residential real estate" and "dwelling unit." Section 541.23 also defines residential real estate (or residential real property):

• Homes (including condominiums and cooperatives).

• Combinations of homes and business property.

• Other real estate used for primarily residential purposes other than a home (but which may include homes).

• Combinations of such real estate and business property involving only minor business use.

• Farm residences and combinations of farm residences and commercial farm real estate.

• Property to be improved by the construction of such structures.

• Leasehold interests in the above real estate.

Section 541.10 defines dwelling unit to mean, "The unified combination of rooms designed for residential use by one family, other than a single-family dwelling."

Small Business Loans

OTS Definition

OTS's definition of a small business loan is in 12 CFR § 560.3: Small business loans and loans to small businesses include any loan to a small business as defined in this section; or a loan that does not exceed $2 million (including a group of loans to one borrower) and is for commercial, corporate, business, or agricultural purposes. The following guidelines also apply:

• Generally, the original amount of a loan is the total amount of the loan at origination or the amount of the loan balance outstanding, whichever is larger.

• For loan participations and syndications, the original amount of the loan participation or

syndication is the entire amount of the credit the lead lender originated.

- For loans drawn down under lines of credit or loan commitments, the original amount of the loan is the amount when the lender most recently approved, extended, or renewed the line of credit or loan commitment before the report date. However, if the amount currently outstanding as of the report date exceeds this size, the original amount is the amount currently outstanding.

- Institutions should combine multiple loans to one borrower and report them on an aggregated basis.

Small Business Administration (SBA) Definition

OTS regulation 12 CFR § 560.3 also cites the SBA definition of small business loans. Savings associations familiar with the SBA standards may prefer to use the eligibility criteria established by the SBA. See section 3(a) of the Small Business Act (Act), 15 USC 632(a), as implemented by SBA's regulations at 13 CFR Part 121.

Section 3(a) of the Act states that a small business concern must be independently owned and operated and not dominant in its field of operation. The Act provides that the definition shall vary from industry to industry in determining what a small business is to the extent necessary to properly reflect industry differences. In addition, the SBA is to make a detailed definition of the term based on, among other criteria, a business's number of employees and dollar amount of business.

The SBA size standards at 13 CFR Part 121 define the maximum sizes to be eligible as a small business concern. Two principal maximum size standards are 500 employees for most manufacturing and mining industries, and $5 million in average annual receipts for most manufacturing industries. However, many exceptions exist and the SBA periodically changes size standards for different industries. Reference to the regulations is necessary to determine size eligibility requirements for a specific business concern.

Starter Home Loans

To be defined as a starter home loan for QTL purposes, a loan must meet certain criteria:

- Be secured by a one- to four-family home or multifamily residential dwelling; or by a development where 75 percent or more of the value of the development consists of such homes. In developments, up to 25 percent of the loan amount may be for facilities serving the community such as community centers or shopping malls.

- Be appraised at the time of loan origination at 60 percent less than the median value of newly constructed one- to four-family houses in the community where the starter home is located.

If no median figures are available for the local community, there are three permissible methods for estimating the median housing price in the community.

- Federal Housing Finance Board (FHFB) Method. An institution may rely on the most recent annual statewide housing value data generated by the FHFB. OTS regional offices will make the FHFB data available.

- National Association of Home Builders (NAHB) Method. NAHB publishes median housing prices monthly for 190 metropolitan areas as part of its Housing Opportunity Index. Associations may use the most recent NAHB data if it includes the local community in which the starter home is located.

- Private Method. An institution may rely on figures generated by a private company that has substantial experience conducting market surveys. The association may use the data on newly constructed housing values for one year after the date of the survey. The survey methodology will be subject to review during examinations.

CONSOLIDATION OF SUBSIDIARIES

In determining an institution's portfolio assets in the calculation of its ATIP, the institution must consolidate its assets with a subsidiary's assets in the following situations:

- The institution consolidates the subsidiary's assets with the institution's assets in determining its QTI.

- The association includes the subsidiary's residential mortgage loans originated and sold within 90 days of origination to determine the institution's QTI.

Except for these circumstances, an institution has the option to consolidate or not, and may make such a decision as frequently as monthly.

PENALTIES

Statutory penalty provisions require an institution that fails to remain a QTL to either become a national bank or be prohibited from the following:

- Making any new investments or engaging in any new activity not allowed for both a national bank and a savings association.

- Establishing any new branch office unless allowable for a national bank.

- Paying dividends unless allowable for a national bank.

Any company that controls a savings association that fails to regain its QTL status within one year must register as and be deemed to be a bank holding company.

Three years from the date a savings association should have become or ceases to be a QTL, by failing either to meet the QTL test or the DBLA test, the institution must comply with the following restriction:

- Dispose of any investment or not engage in any activity unless the investment or activity is allowed for both a national bank and a savings association.

REQUALIFICATION

A savings association may requalify as a QTL only once. Failure to maintain QTL status after requalification permanently subjects a savings association to the penalties described above.

MONITORING QTL COMPLIANCE

You are responsible for reviewing an institution's policies and procedures for maintaining QTL or DBLA status. You must also review documentation with the primary focus on the following:

- Evaluate the eligibility of qualifying investments and to reconcile the amounts recorded.

- Ensure that calculations reported on Schedule SI of an institution's Thrift Financial Report are correct.

- Confirm that the institution's QTL or DBLA status is correct.

REFERENCES

United States Code (12 USC)

| § 1430(e) | Reduced Eligibility for Advances |
| § 1467a(m) | Qualified Thrift Lender Test |

United States Code (15 USC)

| § 632(a) | Small Business Act |

United States Code (26 USC)

| § 7701(a)(19) | Domestic Building and Loan Association Test |

United States Code (42 USC)

| § 5402(6) | National Manufactured Home Construction and Safety Standards Act |

Code of Federal Regulations (13 CFR)

| Part 121 | Small Business Regulations |

Code of Federal Regulations (26 CFR)

| § 301.7701-13A | Post-1969 Domestic Building and Loan Association |

Office of Thrift Supervision Bulletins

TB 71   Serving Communities Affected
                   by Natural Disasters

Qualified Thrift Lender Status
Program

Examination Objectives

To evaluate the institution's policies, procedures, and controls for achieving or maintaining QTL or DBLA status.

To confirm the institution's QTL or DBLA status.

To ensure that the institution observes any consequent limitations or penalties for QTL or DBLA failure.

Examination Procedures   **Wkp.Ref.**

Level I

1. Determine if the institution observes the QTL or DBLA test. If it is the DBLA test, determine if the institution meets applicable DBLA criteria.

2. Review and assess the accuracy of the Qualified Thrift Lender Worksheet or records of compliance with the DBLA test.

3. Determine whether the institution met the requirements of the QTL or DBLA test since the last examination.

4. Review the previous examination report to determine the presence of any QTL-related issues. Determine if management has corrected the deficiencies.

5. Assess the institution's policies, procedures, and controls relating to achieving or maintaining QTL or DBLA status.

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Prepared By:
Reviewed By:
Docket #:

6.   Determine whether any exceptions to the QTL requirement exist, such as extraordinary circumstances.

7.   Determine if the institution records all investments correctly.

8.   Determine if all investments counted as QTI meet the applicable standards.

9.   Review documentation supporting the inclusion of any investments that are not clearly eligible.

10.   If the institution failed the QTL or DBLA test, perform Level II procedures.

Level II

11.   When the institution has failed the QTL or DBLA test, determine if the failure is the first one.

12.   Determine how long the failure has lasted and if the institution has complied with the appropriate penalties.

13.   Interview management to determine if the institution intends to change the composition of its balance sheet to re-qualify as a QTL or DBLA.

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14.   Determine management's plan for maintaining QTL or DBLA status once regained, stressing the consequences of a second failure.

15.   State in the examination report if the institution has not complied with QTL penalties since failure, or if the review uncovers a second or third failure. Outline the actions the institution needs to take to comply with the applicable penalty provisions.

16.   Ensure that your review meets the Objectives of this Handbook Section. State your findings, conclusions, and appropriate recommendations for any necessary corrective measures on the appropriate work papers and report pages.

Examiner's Summary, Recommendations, and Comments

Exam Date: _____

Prepared By: _____

Reviewed By: _____

Docket #: _____

Internal Revenue Code Definition of "Domestic Building and Loan Association"

26 U.S.C.A. § 7701(a)(19)

(19) *Domestic building and loan association. -* The term "domestic building and loan association" means a domestic building and loan association, a domestic savings and loan association, and a Federal savings and loan association –

(A)   which either (i) is an insured institution within the meaning of section 401(a) of the National Housing Act (12 U.S.C., sec. 1724(a)), or (ii) is subject by law to supervision and examination by State or Federal authority having supervision over such associations;

(B)   the business of which consists principally of acquiring the savings of the public and investing in loans; and

(C)   at least 60 percent of the amount of the total assets of which (at the close of the taxable year) consists of –

(i)   cash,

(ii)   obligations of the United States or of a State or political subdivision thereof, and stock or obligations of a corporation which is an instrumentality of the United States or of a State or political subdivision thereof, but not including obligations the interest on which is excludable from gross income under section 103,

(iii) certificates of deposit in, or obligations of, a corporation organized under a State law which specifically authorizes such corporation to insure the deposits or share accounts of member associations,

(iv)   loans secured by a deposit or share of a member,

(v)   loans (including redeemable ground rents, as defined in section 1055) secured by an interest in real property which is (or, from

the proceeds of the loan, will become) residential real property or real property used primarily for church purposes, loans made for the improvement of residential real property or real property used primarily for church purposes, provided that for purposes of this clause, residential real property shall include single or multifamily dwellings, facilities in residential developments dedicated to public use or property used on a nonprofit basis for residents, and mobile homes not used on a transient basis,

(vi)   loans secured by an interest in real property located within an urban renewal area to be developed for predominantly residential use under an urban renewal plan approved by the Secretary of Housing and Urban Development under part A or part B of title I of the Housing Act of 1949, as amended, or located within any area covered by a program eligible for assistance under section 103 of the Demonstration Cities and Metropolitan Development Act of 1966, as amended, and loans made for the improvement of any such real property,

(vii) loans secured by an interest in educational, health, or welfare institutions or facilities, including structures designed or used primarily for residential purposes for students, residents, and persons under care, employees, or members of the staff of such institutions or facilities,

(viii) property acquired through the liquidation of defaulted loans described in clause (v), (vi), or (vii),

(ix)   loans made for the payment of expenses of college or university education or vocational training, in accordance with such regulations as may be prescribed by the Secretary,

(x)   property used by the association in the conduct of the business described in subparagraph (B), and

(xi)   any regular or residual interest in a REMIC, but only in the proportion which the assets of such REMIC consist of property described in any of the preceding clauses of this subparagraph; except that if 95 percent or more of the assets of such REMIC are assets described in clauses (i) through (x), the entire interest in the REMIC shall qualify.

At the election of the taxpayer, the percentage specified in this subparagraph shall be applied on the basis of the average assets outstanding during the taxable year, in lieu of the close of the taxable year, computed under regulations prescribed by the Secretary. For purposes of clause (v), if a multifamily structure securing a loan is used in part of nonresidential purposes, the entire loan is deemed a residential real property loan if the planned residential use exceeds 80 percent of the property's planned use (determined as of the time the loan is made). For purposes of clause (v), loans made to finance the acquisition or development of land shall be deemed to be loans secured by an interest in residential real property if, under regulations prescribed by the Secretary, there is reasonable assurance that the property will become residential real property within a period of three years from the date of acquisition of such land; but this sentence shall not apply for any taxable year unless, within such three-year period, such land becomes residential real property. For purposes of determining whether any interest in a REMIC qualifies under clause (xi), any regular interest in another REMIC held by such REMIC shall be treated as a loan described in a preceding clause under principles similar to the principles of clause (xi); except that, if such REMIC's are part of a tiered structure, they shall be treated as one REMIC for purposes of clause (xi).

Internal Revenue Service's Regulatory Definition of "Domestic Building and Loan Association"

26 CFR Ch. 1 (4-1-96 Edition)

§ 301.7701-13A. Post-1969 domestic building and loan association.

(a) In general. For taxable years beginning after July 11, 1969, the term "domestic building and loan association" means a domestic building and loan association, a domestic savings and loan association, a Federal savings and loan association, and any other savings institution chartered and supervised as a savings and loan or similar association under Federal or State law which meets the supervisory test (described in paragraph (b) of this section), the business operations test (described in paragraph (c) of this section), and the assets test (described in Paragraph (d) of this section). For the definition of the term "domestic building and loan association" for taxable years beginning after October 16, 1962, and before July 12, 1969, see § 301.7701-13.

(b) Supervisory test. A domestic building and loan association must be either (1) an insured institution within the meaning of section 401(a) of the National Housing Act (12 USC 1724(a)) or (2) subject by law to supervision and examination by State or Federal authority having supervision over such associations. An "insured institution" is one the accounts of which are insured by the Federal Savings and Loan Insurance Corporation.

(c) Business operations test –

(1) In general. An association must utilize its assets so that its business consists principally of acquiring the savings of the public and investing in loans. The requirement of this paragraph is referred to in this section as the business operations test. The business of acquiring the savings of the public and investing in loans includes ancillary or incidental activities which are directly and primarily related to such acquisition and investment, such as advertising for savings, appraising property on which loans are to be made by the association, and inspecting the progress of construction in connection with construction loans. Even though an association meets the supervisory test described in paragraph (b) of this section and the assets test described in paragraph (d) of this section, it will nevertheless not qualify as a domestic building and loan association if it does not meet the requirements of both paragraphs (2) and (3) of this paragraph (c), relating, respectively, to acquiring the savings of the public and investing in loans.

(2) Acquiring the savings of the public. The requirement that an association's business (other then investing in loans) must consist principally of acquiring the savings of the public ordinarily will be considered to be met if savings are acquired in all material respects in conformity with the rules and regulations of the Federal Home Loan Bank Board or substantially equivalent rules of a State law or supervisory authority. Alternatively, such requirement will be considered to be met if more than 75 percent of the dollar amount of the total deposits, withdrawable shares, and other obligations of the association are held during the taxable year by the general public, as opposed to amounts deposited or held by family or related business groups or persons who are officers or directors of the association. However, the preceding sentence shall not apply if the dollar amount of other obligations of the association outstanding during the taxable year exceeds 25 percent of the dollar amount of the total deposits, withdrawable shares, and other obligations of the association outstanding during such year. For purposes of this paragraph, the term "other obligation" means notes, bonds, debentures, or other obligations, or other securities (except capital stock), issued by an association in conformity with the rules and regulations of the Federal Home Loan Bank Board or substantially equivalent rules of a State law or supervisory authority. The term "other obligations" does not

include an advance made by a Federal Home Loan Bank under the authority of section 10 or 10b of the Federal Home Loan Bank Act (12 USC 1430, 1430b) as amended and supplemented. Both percentages specified in this paragraph shall be computed either as of the close of the taxable year or, at the option of the taxpayer, on the basis of the average of the dollar amounts of the total deposits, withdrawable shares, and other obligations of the association held during the taxable year. Such averages shall be determined by computing each percentage specified either as of the close of each month, as of the close of each quarter, or semiannually during the taxable year and by using the yearly average of the monthly, quarterly, or semiannual percentages obtained. The method selected must be applied uniformly for the taxable year to both percentages, but the method may be changed from year to year.

(3)   Investing in loans –

(i)   In general. The requirement that an association's business (other than acquiring the savings of the public) must consist principally of investing in loans will be considered to be met for a taxable year only if more than 75 percent of the gross income of the association consists of –

(a)   Interest or dividends on assets defined in paragraphs (1), (2), and (3) of paragraph (e) of this section,

(b)   Interest on loans,

(c)   Income attributable to the portion of property used in the association's business, as defined in paragraph (e)(11) of this section,

(d)   So much of the amount of premiums, discounts, commissions, or fees (including late charges and penalties) on loans which have at some time been held by the association, or for which firm commitments have been issued, as is not in excess of 20 percent of the gross income of the association,

(e)   Net gain from sales and exchanges of governmental obligations, as defined in paragraph (e)(2) of this section, or

(f)   Income, gain or loss attributable to foreclosed property, as defined in paragraph (e)(9) of this section, but not including such income, gain or loss which, pursuant to section 595 and the regulations thereunder, is not included in gross income. Examples of types of income which would cause an association to fail to meet the requirements of this paragraph if, in the aggregate, they equal or exceed 25 percent of gross income, are: The excess of gains over losses from sales of real property (other than foreclosed property); rental income (other than on foreclosed property and the portion of property used in the association's business); premiums, commission, and fees (other than commitment fees) on loans which have never been held by the association; and insurance brokerage fees.

(ii)   Computation of gross income. For purposes of this paragraph, gross income is computed without regard to –

(a)   Gain or loss on the sale or exchange of the portion of property used in the association's business as defined in paragraph (e)(11) of this section.

(b)   Gain or loss on the sales or exchange of the rented portion of property used as the principal or branch office of the association, as defined in paragraph (e)(11) of this section, and

(c)   Gains or losses on sales of participations, and loans, other than governmental obligations defined in paragraph (e)(2) of this section.

For purposes of this paragraph, gross income is also computed without regard to items of income which an association establishes arise out of transactions which are necessitated by exceptional circumstances and which are not undertaken as recurring business activities for profit. Thus, for example, an association would meet the investing in loans requirement if it can establish that it

would otherwise fail to meet that requirement solely because of the receipt of a nonrecurring item of income due to exceptional circumstances. For this purpose, transactions necessitated by an excess of demand for loans over savings capital in the association's area are not to be deemed to be necessitated by exceptional circumstances. For purposes of paragraph (c)(3)(ii)(c) of this section, the term "sales of participations" means sales by an association of interest in loans, which sales meet the requirements of the regulations of the Federal Home Loan Bank Board relating to sales of participations, or which meet substantially equivalent requirements of State law or regulations relating to sales of participations.

(iii)   Reporting requirement. In the case of income tax returns for taxable years beginning after July 11, 1969, there is required to be led with the return a statement showing the amount of gross income for the taxable year in each of the categories described in paragraph (c)(3)(i) of this section.

(d)   60 Percent of assets test. At least 60 percent of the amount of the total assets of a domestic building and loan association must consist of the assets defined in paragraph (e) of this section. The percentage specified in this paragraph is computed as of the close of the taxable year or, at the option of the taxpayer, may be computed on the basis of the average assets outstanding during the taxable year. Such average is determined by making the appropriate computation described in this section either as of the close of each month, as of the close of each quarter, or semiannually during the taxable year and by using the yearly average of the monthly, quarterly, or semiannual percentage obtained for each category of assets defined in paragraph (e) of this section. The method selected must be applied uniformly for the taxable year to all categories of assets, but the method may be changed form year to year. For purposes of this paragraph, it is immaterial whether the association originated the loans defined in paragraphs (4) through (8) and (10) of paragraph (e) of this section or purchased or otherwise acquired them in whole or in part from

another. See paragraph (f) of this section for definition of certain terms used in this paragraph and in paragraph (e) of this section, and for the determination of amount and character of loans.

(e)   Assets defined. The assets defined in this paragraph are –

(1)   Cash. The term "cash" means cash on hand, and time or demand deposits with, or withdrawable accounts in, other financial institutions.

(2)   Governmental obligations. The term "governmental obligations" means –

(i)   Obligations of United States,

(ii)   Obligations of a State or political subdivision of a State, and

(iii)   Stock or obligations of a corporation which is an instrumentality of the United States, a State, or a political subdivision of a State, other than obligations the interest on which is excludable from gross income under section 103 and the regulations thereunder.

(3)   Deposit insurance company securities. The term "deposit insurance company securities" means certificates of deposit in, or obligations of, a corporation organized under a State law which specifically authorizes such corporation to insure the deposits or share accounts of member associations.

(4)   Passbook loan. The term "passbook loan" means a loan to the extent secured by a deposit, withdrawable share, or savings account in the association, or share of a member of the association, with respect to which a distribution is allowable as a deduction under section 591.

(5)   Residential real property loan. [Reserved]

(6)   Church loan. [Reserved]

(7)   Urban renewal loan. [Reserved]

(8)   Institutional loan. [Reserved]

(9)   Foreclosed property. [Reserved]

(10)   Educational loan. [Reserved]

(11)   Property used in the association's business–

(i)   In general. The term "property used in the association's business" means land, buildings, furniture, fixtures, equipment, leasehold interests, leasehold improvements, and other assets used by the association in the conduct of its business of acquiring the savings of the public and investing in loans. Real property held for the purpose of being used primarily as the principal or branch office of the association constitutes property used in the association's business so long as it is reasonably anticipated that such property will be occupied for such use by the association, or that construction work preparatory to such occupancy will be commenced thereon, within 2 years after acquisition of the property. Stock of a wholly owned subsidiary corporation which has as its exclusive activity the ownership and management of property more than 50 percent of the fair rental value of which is used as the principal or branch office of the association constitutes property used in such business. Real property held by an association for investment or sale, even for the purpose of obtaining mortgage loans thereon, does not constitute property used in the association's business.

(ii)   Property rented to others. Except as provided in the second sentence of paragraph (11)(i) of this paragraph (e), property or a portion thereof rented by the association to others does not constitute property used in the association's business. However, if the fair rental value of the rented portion of a single piece of real property (including appurtenant parcels) used as the principal or branch office of the association constitutes less than 50 percent of the fair rental value of such piece of property, or if such property has an adjusted basis of not more than $150,000, the entire property shall be considered used in such business. If such rented portion constitutes 50 percent or more of the fair rental value of such piece of property, and such property has an adjusted basis of more than $150,000, an allocation of its adjusted basis is required. The portion of the total adjusted basis of such piece of property which is deemed to be property used in the association's business shall be equal to an amount which bears the same ratio to such total adjusted basis as the amount of the fair rental value of the portion used as the principal or branch office of the association bears to the total fair rental value of such property. In the case of all property other than real property used or to be used as the principal or branch office of the association, if the fair rental value of the rented portion thereof constitutes less than 15 percent of the fair rental value of such property, the entire property shall be considered used in the association's business. If such rented portion constitutes 15 percent or more of the fair rental value of such property, an allocation of its adjusted basis (in the same manner as required for real property used as the principal or branch office) is required.

(12)   Regular or residual interest in a REMIC –

(i)   In general. If for any calendar quarter at least 95 percent of a REMIC's assets (as determined in accordance with § 1.860F-4(e)(1)(ii) or § 1.6049-7(f)(3) of this chapter) are assets defined in paragraph (e)(1) through (e)(11) of this section, then for that calendar quarter all the regular and residual interests in that REMIC are treated as assets defined in this paragraph (e). If less than 95 percent of a REMIC's assets are assets defined in paragraph (e)(1) through (e)(11) of this section, the percentage of each REMIC regular or residual interest treated as an asset defined in this paragraph (e) is equal to the percentage of the REMIC's assets that are assets defined in paragraph (e)(1) through (e)(11) of this section. See §§ 1.860F-4(e)(1)(ii)(B) and 1.6049-7(f)(3) of this chapter for information required to be provided to regular and residual interest holders if the 95 percent test is not met.

(ii)   Loans secured by manufactured housing. For purposes of paragraph (e)(12)(i) of this section, a loan secured by manufactured housing treated as a single family residence under section 25(e)(10) is an asset defined in paragraph (e)(1) through (e)(11) of this section.

(f) Special rules. [Reserved]

QTL Worksheet for the Month of _____

	Line	Amount *(in thousands)*
PORTFOLIO ASSETS		
Total Assets	1	
20% of Total Assets *(Line 1 X .20)*	2	
Office Building	3	
Liquidity (cash and marketable securities)	4	
Goodwill and Other Intangibles	5	
Deductions from Total Assets *(Sum of Lines 3, 4, and 5)*	6	
PORTFOLIO ASSETS *(Lines1 Minus Line 6)*	7	
20% OF PORTFOLIO ASSETS *(Line 7 X .20)*	8	
QUALIFIED THRIFT INVESTMENTS (QTI)		
ASSETS INCLUDABLE WITHOUT LIMIT		
Mortgage Loans	9	
Real Estate Owned (Residential)	10	
Home Equity Loans	11	
Mortgage-Backed Securities	12	
Educational Loans	13	
Small Business Loans	14	
Credit Card Loans	15	
Obligations of Deposit Insurance Agencies (Prior to 7/1/89)	16	
Obligations of Deposit Insurance Agencies (On or After 7/1/89)	17	
Federal Home Loan Bank Stock	18	
TOTAL QTI INCLUDABLE WITHOUT LIMIT *(Sum of Lines 9 through 18)*	19	
ASSETS INCLUDABLE UP TO 20% OF PORTFOLIO ASSETS		
50% Of Residential Mortgage Loans Originated and Sold Within 90 Days	20	
80% Service Corporations	21	
200% of 1-4 Family Residence Loans (Starter Homes <60% Median)	22	
200% of Certain Loans in Credit-Needy Areas	23	
Community Service Facility Loans (Purchase, Construction, Improvement)	24	
Loans for Personal, Family, or Household Purposes	25	
FNMA or FHLMC Stock	26	
FOR PUERTO RICAN AND VIRGIN ISLAND INSTITUTIONS ONLY		
Loans for Personal Family or Household Purposes	27	
Community Service Facility Loans (Purchase, Construction, Improvement)	28	
200% of 1-4 Family Residence Loans (Starter Homes<Median)	29	
Total QTI Includable Up to 20% of Portfolio Assets *(The Lesser of the Sum of Lines 20-26 or Line 8)*	30	
TOTAL QUALIFIED THRIFT INVESTMENTS *(Sum of Lines 19 and 30)*	31	
ACTUAL THRIFT INVESTMENT PERCENTAGE *(Line 31 Divided by Line 7)*	32	%

OTS Form 1427

Instructions for QTL Worksheet

To calculate the actual thrift investment percentage (ATIP), follow the instructions below and refer to the QTL worksheet. Each institution that elects to comply with the QTL test must perform these calculations on a monthly basis.

Part 1 – Portfolio Assets

Line 1 – Total Assets

Enter total assets. Consolidate a subsidiary if the association counts as a qualified thrift investment any of the subsidiary's assets, or mortgages originated and sold within 90 days of origination. Also, if the institution counts its investment in an 80% mortgage-related revenue subsidiary as qualified thrift investment on Line 21, it must include that investment in total assets.

Line 2 – 20% of Total Assets

Multiply Line 1 by 0.20.

Line 3 – Office Building

Enter the depreciated carrying value of the property, furniture, fixtures, and equipment that the institution uses to conduct its business.

Line 4 – Liquidity

Enter the lesser of the institution's liquid assets (cash and marketable securities) or the amount on Line 2. Do not include as liquidity any securities entered on Line 12.

Line 5 – Goodwill and Other Intangibles

Enter the current unamortized balance of goodwill and other intangibles (including mortgage loan servicing rights).[1]

Line 6 – Deductions from Total Assets

Enter the sum of Lines 3, 4, and 5.

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[1] While OTS does not consider servicing assets intangibles for regulatory capital purposes, our policy is to deduct mortgage servicing assets for QTL.

Line 7 – Portfolio Assets

Subtract Line 6 from Line 1.

Line 8 – 20% of Portfolio Assets

Multiply Line 7 by 0.20.

Part 2 – Qualified Thrift Investments

Note: For all calculations use the outstanding principal balance and add accrued interest and premiums; deduct specific valuation allowances, charge-offs, deferred loan fees, loans in process and unearned discounts.

A. Assets Includable Without Limit

Line 9 – Mortgage Loans

Enter loans held that were made to purchase, refinance, construct, improve, or repair domestic residential housing or manufactured housing. *Note*: The term "domestic" refers to units within the 50 states, the District of Columbia, Puerto Rico, the Virgin Islands, Guam, and the Pacific Islands.

Line 10 – REO (Residential)

Enter property acquired through foreclosure, deed in lieu of foreclosure, or in-substance foreclosure that if it had remained as a loan would have been a qualified thrift investment reported on Lines 9, 11, or 14. Include real estate in judgment.

Line 11 – Home Equity Loans

Enter home equity loans. *Note*: Include here any consumer receivables secured in part by lien on domestic residential housing. If entered here do not include on Line 25.

Line 12 – Mortgage-Backed Securities

Enter securities backed by or representing an interest in domestic residential housing or manufactured housing. Institutions should include securities purchased and exclude securities sold from qualified thrift investments on their trade dates. *Note:* This item encompasses mortgage-

pool securities, mortgage-pool pass-through securities, mortgage-backed bonds, and mortgage-backed pay-through bonds. This item also encompasses any derivative mortgage-related security created by disaggregating and repackaging the cash flows received as payments on mortgages and traditional mortgage-pool securities. The underlying assets of such securities must be domestic residential housing. Bonds, including FHLB, FHLMC, FNMA and GNMA bonds, count only if they are backed by mortgages. Do not include as a qualified thrift investment Resolution Funding Corporation (REFCO) bonds.

Line 13 – Educational Loans

Enter education loans.

Line 14 – Small Business Loans

Enter small business loans. Generally, small business loans are $2 million or less at origination. See the definition in 12 CFR § 560.3.

Line 15 – Credit Card Loans

Enter loans made in conjunction with the issuance or extension of credit through a credit card. This includes loans made to consolidate credit card debt (including credit card debt that other lenders previously held), participation certificates, securities and similar instruments secured by credit card receivables.

Line 16 – Obligations of Deposit Insurance Agencies Issued Prior to July 1, 1989

Enter obligations of the FDIC or FSLIC issued before July 1, 1989, for a period not to exceed ten years past the issue date.

Line 17 – Obligations of Deposit Insurance Agencies Issued On or After July 1, 1989

Enter obligations of the FDIC, the FSLIC, the FSLIC Resolution Fund, or the RTC issued on or after July 1, 1989, for a period not to exceed five years past the issue date.

Line 18 – Federal Home Loan Bank Stock

Enter Federal Home Loan Bank stock.

Line 19 – Total Qualified Thrift Investments Includable Without Limit

Enter the sum of Lines 9 through 18.

B. Assets Includable up to 20% of Portfolio Assets

Line 20 – 50% of Residential Mortgage Loans Originated and Sold Within 90 Days

Enter 50% of loans on domestic residential housing that the association originated and sold within 90 days of origination, provided that the association sold these mortgage loans during the quarter for which this calculation is being made. Associations may use either the previous quarter's figures or a rolling 90-day period.

Line 21 – 80% Service Corporations

Enter the investment (capital stock, loans, advances, and securities) in service corporations that derive 80% of their gross revenues from dealing in domestic residential housing or manufactured housing. *Note*: Institutions that consolidate such subsidiaries in Line 1 (Total Assets) and count any service corporation assets as qualified thrift investments may not report the institution's investment on this line.

Line 22 – 200% of One- to Four-Family Residence Loans (Starter Homes Less than 60% Median)

Enter 200% of loans and investments in domestic residential housing (if not entered on Line 9), the price of which is, or is guaranteed to be, less than 60% of the median price of comparable housing in the community where the housing is located. *Note*: To use this line item, institutions must maintain records demonstrating that the housing meets the 60% of median value test. See definition of starter home loans.

Line 23 – 200% of Certain Loans In Credit-Needy Areas

Enter 200% of loans on domestic residential housing, community service facilities, and to small businesses in credit-needy areas. Do not include any small business loans here if entered on Line 14.

Line 24 – Community Service Facility Loans (Purchase, Construction, Improvement)

Enter loans for community service facilities except those included on Line 23.

Line 25 – Loans for Personal, Family, or Household Purposes

Enter personal, family, household, or share loans, except those included on Lines 11, 13 and 15.

Line 26 – Stock of the FNMA or the FHLMC

Enter FNMA and FHLMC stock that the institution holds.

Puerto Rican and Virgin Island Institutions Only – All Other Thrifts Go to Line 30.

Note: For Lines 27 and 29, the amounts that Puerto Rican thrifts enter may only be for investments in Puerto Rico. Similarly, the amounts that Virgin Islands thrifts enter may only be for investments in the Virgin Islands.

Line 27 – Loan for Personal, Family or Household Purposes

Enter personal, family, household, or share loans made to persons residing or domiciled in Puerto Rico or the Virgin Islands. Do not include loans entered on Lines 11 or 25.

Line 28 – Community Service Facility Loans (Purchases, Construction, Improvement)

Enter loans for community service facilities and loans to small businesses in Puerto Rico or the Virgin Islands, except those included on Lines 23 and 24.

Line 29 – 200% of One- to Four-Family Residence Loans (Starter Homes Less than Median)

Enter 200% of loans and investments in domestic residential housing in Puerto Rico and the Virgin Islands, the price of which is, or is guaranteed to be, less than the median price of comparable housing in the community where the housing in located. Do not include loans entered on Line 22. *Note:* To use this line item, institutions must maintain records demonstrating that the housing meets the median value test.

Line 30 – Total Qualified Thrift Investments Includable Up to 20% of Portfolio Assets

Enter the lesser of the sum of Lines 20 through 26 or Line 8.

Part 3 – Total Qualified Thrift Investments and Actual Thrift Investment Percentage

Line 31 – Total Qualified Thrift Investments

Enter the sum of Lines 19 and 30. This is a savings association's total qualified thrift investment figure. If you are a Puerto Rican or Virgin Island savings association, also add Lines 27 through 29.

Line 32 – Actual Thrift Investment Percentage (ATIP)

Divide Line 31 by Line 7.

INTRODUCTION

Complete and accurate records and reports are essential for a savings association's board of directors and officers in making informed decisions and in clearly understanding and supporting transactions. Also, an association must have policies, procedures, and controls established to ensure that management is properly maintaining financial reports and records. Inaccurate, incomplete, or unreliable information jeopardizes the safety and soundness of an association because unidentified or undisclosed problems could prevent or delay necessary corrective action and undermine the association's viability.

The Office of Thrift Supervision (OTS) must have reliable data to assess and monitor a savings association's financial condition and activities. Your review of an association's books and records, internal reports, and reports to the regional office is very important. Your review allows OTS to rely on the association's records throughout the examination, supervision, and monitoring processes.

RISK-FOCUSED REVIEW

You should direct the focus of your review to assessing the accuracy and adequacy of a savings association's records and reports. Accuracy is essential to properly evaluate and monitor an association's financial condition. This involves obtaining satisfactory explanations of all material variances, trends, or other items and assessing the reasonableness of financial records. You must also evaluate an association's policies and procedures for relevance and sufficiency.

You should not spend an inordinate amount of time verifying a minor account if it has a small balance and does not consist of large, offsetting transactions. You should report to management minor errors or omissions that you discover.

Regulatory Requirements

Pursuant to Part 562 all savings associations and their affiliates must maintain accurate and complete records of all business transactions. The savings association must keep the records in the United States. They must be readily accessible for examination and other supervisory purposes within five business days upon request by OTS, at a location acceptable to OTS.

Section 563.170(c) requires each savings association to establish and maintain an accurate and complete record of all business that it transacts. An association must establish and maintain such other records as required by applicable statutes or regulations. The documents, files, and other material or property comprising these records must be available for examination and audit.

Change in Location of Records

Under § 563.170(d), savings associations must perform the following actions before they transfer the location of general accounting or control records, or the maintenance thereof:

- Obtain a board of directors' resolution authorizing the transfer or maintenance.

- Send a certified copy of the resolution to the regional director.

Incomplete or Inaccurate Records

Regions should immediately issue supervisory directives if an association's books and records are incomplete to make an examination impossible or if they do not provide complete and accurate details on all business transactions. The caseload manager (or equivalent) should promptly meet with the association's board of directors, discuss the problem, and require prompt corrective action through a formal supervisory agreement. If the association does not correct the deficiency, the caseload manager

should refer the matter to OTS's Regional Counsel for initiation of cease-and-desist proceedings.

You should be particularly alert to violations of Part 562 and § 563.170(c), as the presence of incomplete and inaccurate records historically is evidence of severely deficient operating standards and a resultant deteriorating financial condition.

Records and Reports

You may gather data from savings association records, such as:

- General ledger

- Subsidiary ledgers

- Journals

- Vouchers

- Various schedules and reports.

Various schedules and reports that will be useful to you in your review process include the following:

- Internal reports that staff submit to management and the board of directors.

- The Thrift Financial Report (TFR).

- External and internal audit reports.

- Holding company annual reports.

- Securities and Exchange Commission 10Q and 10K filings.

You may also obtain additional information from regional office monitoring activities and work performed by external and internal auditors who attest to the integrity of an association's books and records.

Savings associations should maintain internal systems and procedures to ensure that reporting reflects appropriate regulatory requirements. Clear, concise, and orderly records should support the compilation of various data. Proper documentation provides not only a logical tie between financial report data and an associa-

tion's records, but also facilitates accurate reporting and verification.

General and Subsidiary Ledgers

Each savings association should have a chart of accounts describing the nature and general content of each general ledger account. You should encourage associations that do not have such charts to develop one. The chart of accounts will not only aid in your review, but will also provide consistency and continuity in an association's accounting department.

You should obtain the general ledger and appropriate subordinate organization (for example, service corporation, operating subsidiary or lower-tier entity as defined in Part 559) ledgers. You should review the individual asset, liability, capital, and income and expense accounts for their history, recent activity, balance, and propriety. You should investigate any extraordinary items or items that are not self-explanatory, and you should review and reconcile any catch-all accounts (that is, other assets, other liabilities, miscellaneous, or suspense accounts). If your review discloses any errors or omissions, you should determine whether they resulted from inadequate policies, deficient procedures, or practices not in accordance with an association's policies and procedures.

During your review of the general ledger and subsidiary ledgers, you should determine that the account titles accurately reflect the account contents. A title describing an account may not always represent its content. The determination that an account contains the proper items and has a true balance helps to ensure that all line items are being recorded properly on the TFR. If reclassifications are necessary, you should advise management accordingly and follow up to see that the association has done so correctly.

Thrift Financial Reports

OTS requires each insured savings association to file a TFR with the Financial Reporting Division (FRD) office in Dallas on the 30th day following the end of each calendar quarter. Schedules CMR (Consolidated Maturity/Rate) and HC (Thrift Holding Company) are due 45 days following the

end of each calendar quarter. "Clean" data are typically available within 45 days following the filing of the reports. OTS uses the TFR to collect detailed financial information in a consistent format on all regulated savings associations, to collect uniform information on industry activities, and to facilitate supervision by OTS. The TFR discloses an association's financial condition, the results of its operations, and other supplemental data. OTS uses data from this report as the basis for its Thrift Time Series report. This report in turn produces other reports, such as the Uniform Thrift Performance Report (UTPR), the Thrift Monitoring System (TMS), and the Report of Examination (ROE) financial pages. You may access Thrift Time Series reports through the Thrift Information Management System (TIMS).

Thrift Financial Report Requirements

The Competitive Equality Banking Act of 1987 (CEBA) requires savings associations to file financial reports that use generally accepted accounting principles (GAAP).

Savings associations must complete the financial sections of the TFR on a consolidated basis. You should review the TFRs to ensure that all consolidations are performed properly, and that associations are following TFR instructions in completing their reports.

OTS uses the Consolidated Maturity and Rate Information on Schedule CMR to collect detailed information relating to an institution's interest rate risk. A savings association must file Schedule CMR if it meets one of the following criteria:

- Total assets are in excess of $300 million.

- The risk-based capital ratio is less than 12 percent.

- The regional director directs the institution to file the schedule.

Many savings associations that OTS does not require to file Schedule CMRs do so voluntarily. These associations must conform to the same filing deadlines and accuracy requirements as associations that OTS requires to file the schedules.

OTS requires savings associations to file TFRs electronically with the FRD using the OTS Electronic Filing System (EFS). The EFS may interface with the general ledger to create an electronic relationship between the general ledger and the TFR line items. This interface automates the preparation and filing of the TFR and shortens the learning curve when there is a change in an association's report preparer. The software also contains an editing function that helps reduce reporting errors. It is important that you thoroughly review an association's books and records and not rely on the interface reporting capability.

Review of the Thrift Financial Report

You should review the content of the most recent quarterly TFRs for accuracy. You should also reconcile line items shown on the reports to the general ledger, the subsidiary ledgers, and other appropriate sources, such as loan registers. The TFR Instruction Manual provides instructions on the content of TFR line items. The instructions explain, line-by-line and category-by-category, what information is allowable for placement in specific TFR line numbers. OTS revises the instructions quarterly and generally revises the forms annually. Both industry and regulatory personnel must have up-to-date instructions for accurate classifications and reconciliations.

The TFR Instruction Manual is available on the OTS Web site. Also available is a Q & A and News which are good sources of information when reviewing an institution's TFR.

If you discover any errors or omissions during the TFR review, you should determine whether any association policies, procedures, or deficient or inadequate practices caused them. You should explain and document in the ROE any significant adjustments, including their causal factors. A significant adjustment results in any one of the following:

- Failure of a capital requirement.

- Change in an association's prompt corrective action (PCA) category.

- Change in a component rating.

- A change that is significant for regulatory reporting purposes.

Generally, you should not require that an association amend a prior period TFR unless the adjustment is significant. If the adjustments are not significant, you should direct the association to show the adjustments on its next TFR scheduled filing.

Errors or omissions in one schedule usually have repercussions within other schedules. As a result, when you discover and correct an error in one schedule, you must also amend other schedules affected by the error. For example, if an association classifies a credit in Schedule SC as a mortgage loan, and you subsequently reclassify it as a commercial loan, the association then must make the appropriate changes in Schedule CMR. You must disclose any errors discovered in the TFRs on the proper page(s) in the ROE, including financial report pages.

The accuracy of the TFRs is extremely important, because OTS uses information contained in the reports to monitor savings associations between examinations. If associations submit inaccurate data, OTS may not detect changing patterns of behavior or deteriorating trends. When compounded, a distorted picture of the industry condition could result.

Internal Reports to the Board of Directors

Boards of directors have extensive fiduciary responsibilities in guiding the activities of their savings associations. Creditors and depositors have the right to expect that an association's board of directors and officers use safe, sound, and ethical practices.

You should do the following examination procedures:

- Ascertain whether management presents any reports to the board besides the required reports, such as the TFR.

- Review for accuracy and adequacy of the content of the additional reports.

- Determine whether the submission of inaccurate or inadequate reports is the result of an intentional act by management.

At a minimum, reports to the board of directors should include the following operational information:

- A summary of significant financial activity.

- Documentation detailing loans granted.

- Delinquencies.

- The status of previously approved ongoing projects (including loan projects).

- The status of any real estate workouts.

- Liquidity reports.

- Profit and loss statements with yearly and year-to-date comparisons.

- Foreclosure status reports.

- Classified asset summaries.

- Any salient trial balance data.

If you discover any material errors or omissions in these reports, you should determine and explain in the ROE the causal factors.

Monitoring Reports

Regional offices monitor savings associations' reports on an ongoing basis. Some regions provide examiners with reports that the regions generate from information gleaned during the surveillance process. If your regional office sends monitoring reports to you, you should review them for any of the following:

- Incipient adverse trends.

- Material deviations from one period to another.

- Extraordinary developments.

- Other matters of concern.

You should follow up on all items deemed worthy of further investigation and obtain satisfactory responses from management that explain specific questionable matters.

REFERENCES

Code of Federal Regulations (12 CFR)

§ 552.11	Books and Records
§ 560.160	Asset Classification
§ 560.172	Re-evaluation of Real Estate Owned
Part 562	Regulatory Reporting Standards
§ 563.170	Examinations and Audits; Appraisals; Establishment and Maintenance of Records

Other References

Office of Thrift Supervision, *Thrift Financial Report Instruction Manual*

Office of Thrift Supervision, *Directors' Guide to Management Reports (October 1999)*

U.S. League of Savings Institutions, *Standard Accounting Manual*

Financial Records and Reports
Program

Examination Objectives

To determine and evaluate the savings association's policies, procedures, and controls for maintaining adequate and accurate reports and records as considered appropriate by standard accounting guidelines and as required by applicable regulations.

To determine the accuracy of the quarterly TFRs filed with OTS and to ascertain if the savings association must file any amended reports.

To determine the accuracy and adequacy of the savings association's internal financial records and reports.

Examination Procedures   <u>**Wkp.Ref.**</u>

Level I

1. Review the previous examination report, any off-site monitoring reports, management letter, and Preliminary Examination Response Kit (PERK) information, specifically the internal control questionnaire and the applicable financial data.

2. Review the previous report of examination and all financial records and reports-related exceptions noted and determine if management has taken appropriate corrective action.

3. Review and discuss with management the savings association's policies, procedures, and controls relating to the maintenance of financial records and reports. Include in your discussion the training and support given to the report preparer(s) of the TFR.

4. Review the most recent quarterly TFRs for accuracy. Ensure that the savings association prepared the reports according to TFR instructions. Explain any material reporting errors identified in the examination work papers and in the ROE and discuss them with management. (Determine, based on the guidance in the general instructions section of the TFR Instructions, whether an amended report is necessary.)

Exam Date: _____
Prepared By: _____
Reviewed By: _____
Docket #: _____

5. Review internal reports provided to management and the board of directors and compare with the TFRs. Identify and explain material variances. Coordinate this review process with the regulator involved in the review of management. If appropriate, determine the frequency and adequacy of the internal reports considering the complexity and level of the savings association's operations.

6. Review Level II procedures and perform those necessary to test, support, and present conclusions derived from performance of Level I procedures.

Level II

7. Review and reconcile TFR line items to the general ledger, appropriate subsidiary ledger, and any other financial records of the savings association. Identify unusual or unexplained activity and material variances. Specifically review non-descriptive accounts such as "other assets" or "other expenses."

8. Ensure that your review meets the Objectives of this Handbook Section. State your findings and conclusions, and appropriate recommendations for any necessary corrective measures on the appropriate work papers and report pages.

Examiner's Summary, Recommendations, and Comments

Exam Date:

Prepared By:

Reviewed By:

Docket #:

INTRODUCTION

Effective management decision making means making the best possible choices from the available investment alternatives consistent with the amount of funds available for reinvestment. To make the best choices consistently, however, a basis for analysis must exist that can provide a common denominator for various investment alternatives. Each alternative will have a different contract rate, maturity, minimum amount requirement, and method of payback.

One idea that both management and regulators use in the thrift industry is "present value analysis," based on the time value of money. In this Section we specifically provide information about present value analysis. Through a detailed set of problems, the Section provides assistance in performing present value analysis computations to arrive at conclusions regarding sound institutional investments.

A word of caution is in order. Many business transactions involve considerations other than those governed by present value theory and its applications. Consequently, there will be instances where other considerations will temper management's and regulators' positions.

The primary objectives of this Section are:

- To understand and apply the concept of present value analysis in management decision making within the framework of the regulatory process.

- To evaluate the true effect of actual business transactions and decisions on the overall financial condition of a thrift institution.

- To ensure that savings associations adjust financial statements to reflect present value where necessary.

EXAMINATION CONSIDERATIONS

Financial intermediaries, including thrift institutions, attempt to channel funds effectively and efficiently from depositors to worthwhile borrowers. Institutions buy and sell financial claims. Financial assets and financial liabilities, however, have a time value. Customers present deposits in return for a promise of future deposit withdrawal plus interest. The ability to acquire and retain savings deposits from surplus sources is a function of the interest rate, the interest-compounding interval, and the deposit maturity.

Conversely, institutions lend present funds to borrowers in exchange for a promise of future interest and principal repayment. Savings associations evaluate such financial transactions based on present value analysis. Institutions sell interests in previously originated mortgages; you must be able to understand the underlying valuation mechanics. In addition, real estate owned financing requires present value application knowledge. The following guidelines show the user how to compute the future value, present value, and prospective rate of return of various investment opportunities. Simply stated, the worth of one dollar tomorrow is different from the worth of one dollar today.

COMPOUND ACCUMULATION

Compounding an Initial Deposit

Simple interest is the receipt or payment of interest upon principal; compound interest also includes interest upon interest. General compound accumulation involves determining some future value based upon an initial deposit. Calculation of a future value sum derives from the stated annual interest rate (r), the time period funds are deposited (n), the compounding interval (m), and the amount of the initial deposit (PV). The future value increases as the deposit, interest rate, number of compounding intervals, and time period

increase. Equation 1 represents the proper notational relation of these elements.

Computation of future sums becomes unwieldy in Equation 1 whenever n or m becomes large. Normally, the compounding interval, m, is annual ($m=1$), semiannual ($m=2$), quarterly ($m=4$) or monthly ($m=12$). Compound value tables simplify the task, as the amount, $[1 + (r \div m)]^{nm}$, is known as "future value of $1." You may solve a compound accumulation problem whenever four of the five elements of Equation 1 are known. The present value tables in Appendix A assume a deposit is made at the beginning of each period.

Equation 1

$$\text{Sum} = PV\left[1 + \left(\frac{r}{m}\right)\right]^{nm}$$

Appendix B to this section provides Hewlett-Packard HP-12C calculator keystroke sequences and solutions for each of the following problems. The solutions presented throughout this Section incorporate the tables found in Appendix A to facilitate the reader's comprehension of present value concepts. Once the principles of cash flow, timing, and interest compounding are assimilated, use of the calculator will become easy. For a detailed discussion of the calculator's basic financial functions, refer to pages 36 through 78 of the HP-12C *Owner's Handbook and Problem Solving Guide*. Examples follow:

Problem 1

If a depositor places $2,000 in an account, how much will the deposit grow in 20 years assuming a 6% interest rate, compounded annually?

Answer: $Sum = PV(1.06)^{20}$. Future value of $1, compounded annually at 6% for 20 years, is 3.2071. $Sum = \$2,000(3.2071) = \$6,414.20$. The initial deposit would grow to $6,414.20, assuming the depositor maintains all interest in the account.

Problem 2

A depositor wishes to accumulate $5,000 within 10 years. Assume a 4% rate of return, compounded annually. How much must the depositor place in the account to attain the savings goal?

Answer: $Sum = PV(1.04)^{10}$. Here, the present deposit, PV, equals the desired *sum* divided by the interest factor. $PV = \$5,000 \div (1.4802) = \$3,377.92$. Thus a deposit of $3,377.92, earning 4%, compounded annually for 10 years, will generate the desired $5,000.

Problem 3

A depositor places funds in an 8% annually compounded account and wishes to determine the necessary length of time to double the deposit.

Answer: $Sum = PV(1.08)^n$. Solve for the future value factor, which equals the desired *sum* divided by the initial deposit, PV. $(1.08)^n = Sum \div PV = 2 \div 1 = 2.000$. The 8% annually compounded interest factor that approximates 2.00 is found at nine years. Thus, a deposit doubles in nine years when compounded annually at 8%.

The first three examples all assume annual compounding (i.e., $m = 1$). Some tables include an appropriate future value factor for shorter compounding periods, which facilitate numerical computations. When multiple compounding interval tables are not available, determine the appropriate factor by using an interest rate that equals the annual interest rate divided by the compounding interval factor (r/m), and using an annual period that equals the maturity times the compounding interval factor ($n \times m$). For example, the future value factor of $1 compounded quarterly at 16% for five years is equal to the annual factor of 4% (16% $\div$ 4) for a period of 20 years (5 x 4). Note that the quarterly compounded factor of 2.1911 exceeds that of 2.1003 for annual compounding applicable to 16% over five years. The quarterly compounding provides more interest on interest.

Problem 4

How much extra interest would a depositor receive on a 7%, four-year $1,000 certificate of deposit if the institution compounded interest semiannually rather than annually?

Answer: $Sum = PV(1.07)^4$. The future value factor for a 7%, four-year note compounded annually equals 1.3108. $Sum = PV[1 + (.07 \div 2)]^{2x4}$. $Sum = PV(1.035)^8$. The future factor for the semiannual compounding equals 1.3168 (found directly from a semiannual table or from an annual table using 3.5% and eight years.) For each $1,000 deposit, the semiannual compounding increases future value by $6 at the end of four years [$1,000(1.3168-1.3108)].

The user should be able to determine various unknowns within a compounding framework. The illustrations relate primarily to computation of the receipt or payment of interest upon an initial deposit.

Compounding a Constant Deposit Each Period

Another compound accumulation process involves a constant amount invested each period for a number of years. For example, what sum will result if $1,000 is deposited each year for three years at 6% interest? Of course, it is possible to solve the problem by parts. Determine the future value of $1,000 deposited each year for three years at 6% ($1,000 x 1.1910), plus $1,000 deposited for two years at 6% ($1,000 x 1.1236) plus $1,000 deposited one year at 6% ($1,000 x 1.06). The total of the three parts equals $3,374.60 at the end of three years. Fortunately, some tables include a factor for a "future value of $1 each period." For example, the problem above may be solved directly by multiplying the $1,000 annual deposit by a factor of 3.3746, located in the annually compounded, 6% Future Value of $1 Each Period Table found in Appendix A. Obviously, the inclusion of such factors greatly simplifies future value calculation when a constant amount is deposited each period.

PRESENT VALUE ANALYSIS

Discounting a Future Amount

Present value analysis provides a common denominator for the evaluation of various income and expense streams. Simply, all dollar flows and sums are based at one point in time. That time is generally today; hence, the name of present value. A dollar received or paid one year hence is worth something different from a dollar received or paid 10 years hence. At a minimum, a dollar may be invested in an institution and earn some rate of return. In fact, present value analysis is the inverse of compounding. Remember, compounding determines what a dollar deposited today will be worth in the future. Present value determines the current value of a future dollar transaction. Because of this inverse relation, the mathematical representation of present value in Equation 2 is quickly found by dividing Equation 1 by the interest factor.

Equation 2

$$PV = \frac{Sum}{\left[1 + \dfrac{r}{m}\right]^{nm}}$$

Because of normal presentation of present value tables and the cumbersome interest factor of Equation 2, a notational convention has been adopted: $Sn/m/r$. The S represents a present value or discounting procedure, n represents the period in which the transaction is effected, m represents the compounding time intervals involved, and r is the interest rate of discount. As in compounding, the discount factor is multiplied by the dollars involved. For example, the present value notation of $1 to be received five years hence at an 8% annual discount rate is $S5/1/8\%$ and equals .6806. The present value of $1 received five years hence discounted at 8% is $.68. A dollar received in the future is worth less today. Alternatively, $.68 deposited for five years at an 8% annually compounded rate grows to $1 at period termination. ($.68 x 1.4693 = $1). Compounding and discounting are inverse processes.

Problem 5

A service corporation anticipates a tract of land will be worth $250,000 four years hence. If the corporation requires a 12% annual rate of return on investment, what is the maximum price that the service corporation should pay for the land?

Answer: $PV = Sum(S4/1/12\%)$. The present value factor of $1 four years hence discounted at 12% is .6355 and the *sum* to be received is $250,000. Thus, the maximum price for the land is $158,875 ($250,000 x .6355). Conversely, $158,875 invested today at 12% interest compounded annually will equal $250,000 at the end of four years ($158,875 x 1.5735).

Problem 6

In January 1983, an investor purchased the stock of an institution for $30 per share. In January 1998, the investor sold the institution stock for $70 per share. The institution paid no dividends. What was the annual compound rate of return on investment?

Answer: $PV = Sum(S15/1/r/)$. In this case, all variables are known except *r*. What *r* will generate an interest factor that equates the *PV* of $30/share to the sum of $70/share? $PV/Sum = (S15/1/r)$ $30 ÷ $70 = .4286 = (S15/1/r)$. An interest rate between 5.75% and 6.00% generates a present value factor for a 15-year annual compounding approximately equal to .4286. Thus, the return is between 5.75% and 6.00%.

Discounting a Constant Amount Per Each Period

A common time value technique applicable to institution investment is discounting a stream of equal future payments. Most residential mortgage contracts amortize a loan completely from equal monthly repayments. Payments include both interest and principal. Tables are available to account for discounting a stream of equal cash flows, known as *PAY*, which are assumed to occur at the end of each period. $PV = PAY (An/m/r)$. For example, what is the present value of $1 to be paid at the end of each year for three years discounted annually at 9%? Note the three $1

payments. Because these three payments occur in the future, the present value should be less than a simple summation. The discount annuity factor for $(A3/1/9\%)$ from the Present Value of an Annuity of $1 Per Period Table of three years and 9% equals 2.5313. Because the annual cash flow, *PAY*, equals $1, the present value of the stream is $2.53 ($1 x 2.5313). Alternatively, the problem could be solved by parts, one period at a time. The present value of $1 discounted annually at 9% equals .7722 from the third year, .8417 from the second year, and .9174 from the first year. The addition of each of the three present values equals 2.5313. As you can see, when equal payments are involved, use of present value of an annuity of $1 per period considerably facilitates computation.

Problem 7

An institution may purchase a mortgage that will be fully paid in equal annual payments of $700 for the next nine years (that is, there are nine payments remaining.) If the institution requires a 10% return on investment, what is the highest price the institution should pay?

Answer: $PV = PAY (A9/1/10\%)$. The appropriate present value factor of $1 for each year for nine annual payments at 10% is 5.7590. The institution will receive not $1, but $700 each year, so the maximum price the institution should pay is $4,031.30 ($700 x 5.7590). Alternatively, an individual depositing $4,031.30 today could withdraw $700 per year for nine years if the account earned 10% on each year's remaining deposit.

Problem 8

A bank offers you terms of 9 1/2% and 20 years for a residential mortgage. If you must borrow $40,000, what will be the equal monthly payments?

Answer: $PV = PAY (A20/12/9.5\%)$. The appropriate present value factor that accounts for the 240 monthly payments is 107.2810. The loan amount is $40,000. Therefore, PAY equals *PV* divided by the interest factor. PAY = $40,000/107.2810 = $372.85. Monthly payments of $372.85 will amortize the $40,000 loan over 20 years.

Alternatively, you can compute the monthly payments directly by multiplying the initial loan times the appropriate factor within the Present Value of an Annuity of $1 Per Month for *n* Years Table. Tables that include this factor ease payment calculations. For example, the installment factor equals .00932131 for the given problem. In this case, the monthly payment equals $372.85 ($40,000 x .00932131).

The problems identified above provide the core for mortgage investment analysis.

Discounting Mixed Types of Cash Flows

Some investment opportunities have a stream of equal payments plus a single large payment at the conclusion. The coupon bond form of contract is an example. The standard bond has a face value (par) of $1,000, a stated maturity and a stated coupon rate. For a bond with a 10-year term to maturity and a coupon rate of 6%, the annual return would be $60 (6% of $1,000) for 10 years, at which time the face amount of $1,000 would be repaid. The coupon interest payments constitute the annuity portion, and the principal repayment is the large single payment. Bond price evaluation follows in a present value formula. $PV = \text{PAY} (An/m/r) + \text{Sum} (Sn/m/r)$.

Problem 9

An institution has the opportunity to purchase a $1,000 bond with a 6% coupon rate and 10 years remaining to maturity. Because of a cyclical increase in interest rates, bonds such as this one are selling at a price to yield 9% to maturity. At what price should the bond sell?

Answer: Discount the promised future payments to the present at a 9% rate.

$PV = \text{PAY} (A10/1/9\%) + \text{Sum} (S10/1/9\%)$
$PV = \$60 (6.4177) + \$1,000 (.4224)$
$PV = \$385.06 + \$422.40 = \$807.46$

A current price of $807.46 will generate a 9% return to an investor over a 10-year period.

Whenever the rate of return (discount rate) is equal to the bond coupon rate, the present value is the face value of the bond. Whenever the rate of return is higher than the bond coupon rate, the present value is less than face and trades at a discount (as in Problem 9). Conversely, whenever the rate of return is lower than the bond coupon rate, the present value is more than face and trades at a premium.

MORTGAGE INVESTMENT ANALYSIS

Many present value applications exist within mortgage investment analysis. Institutions lend present funds in exchange for future interest and principal repayment. Effective investment yields may be increased by numerous mechanics including points, prepayment penalties, buying and selling of whole loans and wraparound loans. The following examples illustrate the numerical mechanics of these various mortgage investments.

The Basic Mortgage Loan

The basic mortgage loan is a primary financial asset of thrift institutions. A mortgage instrument normally involves disbursement of a lump sum that is subsequently paid off in level, equal payments. Obviously, heavy use is made of present value annuity tables within the heading "Present Value of an Annuity of $1 per Month." Knowledge of the previously presented material is hereafter assumed.

Problem 10

An institution offers terms of 10% for a 30-year-maturity mortgage of $50,000. What monthly payment will amortize the loan?

Answer: $PV = \text{PAY} (An/m/r)$
$\$50,000 = \text{PAY} (A30/12/10\%)$
$\$50,000 = \text{PAY} (113.9508)$
$\$50,000 \div 113.9508 = \text{PAY}$
$\$438.79 = \text{PAY}$

Thus, monthly payments of $438.79 for 30 years will completely amortize the loan and provide the lender with a 10% return on the outstanding balance.

Selling and Purchasing Whole Loans

Thrift institutions use the secondary market to buy and sell previously originated mortgage loans. In these transactions, the monthly payment and maturity do not vary as a result of a change in mortgage ownership. The market value and the effective investment return may differ from the book value and stated contract rate.

Problem 11

Assume five years have elapsed for the hypothetical loan stated in Problem 10. The loan represents a monthly stream of level $438.79 payments for 5 years. Thus, 300 payments remain (25 years x 12 months/year.) At what price should the institution sell the loan so that a buyer receives an 8.75% return? Compare the selling price with the book value of the loan (that is, the value obtained with a 10.0% return).

Answer: First, compute the loan value at the market yield, 8.75%.

PV = PAY x ($An/m/r$)
PV = $438.79 x ($A25/12/8.75\%$)
PV = $438.79 x 121.6332
PV = $53,371.43

Second, compute the loan book value at the contractual yield, 10.0%.

PV = $438.79 x ($A25/12/10.0\%$)
PV = $438.79 x 110.0472
PV = $48,287.61

Thus, the loan principal has been repaid by $1,712 with the previous five years of monthly payments ($50,000 - $48,288 = $1,712). As a result of an interest decline, however, the institution may sell the loan for $53,371, which represents a profit of $5,083.82 over book value ($53,371.43 - $48,287.61).

The decision to buy or sell loans is not solely a function of being able to sell at a profit. For example, in the problem above, the institution books a "profit" at the expense of reinvesting funds at a lower interest rate than is applicable to the initial loan. Buying and selling mortgages enable institu-

tions to coordinate the assets portfolio with funds flow.

Discount Points

The effective investment yield of a mortgage may be increased by the imposition of discount points from the face value of the mortgage loan at the time of disbursement. For example, a $50,000 mortgage loan bearing four points and an interest rate of 7% results in a disbursement of $48,000, which is 4% less than anticipated. The monthly payment and loan pay-off, however, are based on the full face amount of the loan. Because of the influence of points, the yield on such a loan will be higher than the contractual rate. Indeed, the earlier a mortgage loan bearing points is paid off, the greater the effect of points on the yield.

Problem 12

What is the effective investment yield of a $50,000 mortgage loan at a 7% rate with the imposition of four points? Assume the loan is not paid off until the final maturity of 30 years.

Answer: First determine the monthly payments on the basis of the full face amount of the loan.

PV = PAY x (A30/12/7\%)
$50,000 = PAY x 150.3076
$332.65 = PAY

However, the payments are received for a disbursement of $48,000, not $50,000. Thus, determine that rate that equates the present value of the level payment to the actual disbursement.

$48,000 = $332.65 x (A30/12/$r$)
144.2958 = A30/12/r

A yield of 7.4% approximates that interest factor necessary to equate the monthly payment stream of $332.65 with the actual loan disbursement of $48,000.

Problem 13

Recompute the investment yield from Problem 12 by assuming the loan is repaid at par in five years, and not at maturity.

Answer: The loan payments of $332.65 per month and the initial loan disbursement of $48,000, remain constant. In this case, however, you must calculate the loan value at the end of five years. Twenty-five years of monthly payments remain.

PV = $332.65 x ($A$25/12/7%)
PV = $332.65 x 141.4869
PV = $47,065.62

Now compute the investment yield. Note that the problem includes a mixed type of cash – both an annuity for five years and a lump sum at the end of the fifth year.

PV = PAY ($A$5/12/r) + Sum($S$5/12/r)
$48,000 = $332.65 ($A$5/12/$r$) +
$47,065.62($S$5/12/$r$)

The problem may not be solved through the usual division and factor location within a discount of discount annuity table. Rather, you must locate, via trial and error, the interest rate that equates the loan disbursement to the present valued annuity and lump sum. At a minimum, the appropriate rate should exceed the 7.4% of Problem 12 because the institution's advantage of points is realized much sooner. Therefore, try a higher rate; say 7.5%.

$48,000 = $332.65(49.9053) + $47,065.62 (.6881)
$48,000 = $16,601.00 + $32,385.85
$48,000 = $48,986.85

Because the loan disbursement is considerably less than the present valued payments at a discount rate of 7.5%, try a higher rate; say 8.0%.

$48,000 = $332.65 (49.3184) + $47,065.62 (.6712)
$48,000 = $16,405.77 + $31,590.44
$48,000 = $47,996.21

A discount rate of 8% approximately equates the funds flow. Thus, the effective yield is slightly less then 8% as the problem indicates.

Points increase a yield, which is further increased with a loan repayment before maturity.

Prepayments and Penalties

Prepayments represent early payments on loans; they usually occur at the discretion of the borrower. The timing and amount of prepayments are of concern to the liquidity management of institutions. Prepayments tend to move inversely to the interest rate level. When interest rates are low, borrowers benefit by refinancing a mortgage (that is, prepaying the loan). Conversely, when rates are high, housing sales slow and individuals selling houses are not motivated to prepay; rather, they allow the buyers to assume the loan to facilitate the sale. Prepayments run counter to the pro table investment of funds.

Some mortgage loan contracts contain a prepayment penalty. For example, a mortgage loan contract may specify a penalty of six months' interest on the amount of the loan principal outstanding at the time the loan is prepaid. The effect the prepayment penalty has on the effective yield of a mortgage loan depends upon the period of time until the loan is prepaid.

Similar to points, the effective yield from penalties increases as a loan is prepaid more quickly.

Problem 14

Determine the effective yield from a $50,000, 30-year mortgage with a 10% rate that is prepaid at the end of five years. The prepayment penalty is six months' interest.

Answer: Problems 10 and 11 solved portions of the problem. First, the monthly payments are $438.79. Second, the book value of the loan after five years is $48,287.61. The prepayment penalty of 6 months' interest (1/2 year) is $2,414.38 ($48,287.61 x 1/2 x 10%). The effective yield is determined by a process similar to that used in points. Discount the cash inflow by the rate that equates the inflow to the original loan disbursement.

PV = PAY ($A$5/12/r) + Sum($S$5/12/r)

Note that the sum includes both the loan repayment and prepayment penalty ($48,287.61 +

$2,414.38). $50,000 = $438.79 (A5/12/r) + $50,701.99 (S5/12/r).

Try a discount rate of 10.75%. (Remember, this is by trial and error.)

$50,000 = $438.79 (46.2578) + $50,701.99 (.5856)
$50,000 = $20,297.46 + $29,691.09
$50,000 = $49,988.55

A discount rate of 10.75% approximately equates the inflow with the loan disbursement. The penalty increases the effective yield to 10.75% from the original 10% loan. The penalty partly compensates the institution for the need to reinvest funds, which will probably be at a lower current rate. Institutions may substantially increase yields by the imposition of both points and a prepayment penalty in addition to simply charging a higher rate. To a large extent, market forces maintain a competitive rate.

Wraparound Loans

A wraparound loan enables an institution to lend an existing borrower an additional amount over and above the unpaid balance on an old loan. Even at higher rates, some customers may be interested in the opportunity to refinance old loans into new loans with larger balances or longer maturities. A portion of the payments on the wraparound loan continues to amortize the initial loan, while the residual portion pays off the new principal. The effective investment yield of a wraparound is calculated by the interest rate that equates the present valued incremental payment stream to the additional funds disbursed. Generally, the yield to the institution declines as the amount of new dollars lent increases and as the maturity of the loan is lengthened.

Problem 15

Fifteen years ago, a borrower received a $30,000 mortgage at a 5% rate and a 20-year maturity. Therefore, monthly payments of $197.99 remain for five years. An institution offers a wraparound loan for $1,000 more than the unpaid mortgage at a rate of 8% with a five-year maturity. What is the effective investment yield for the institution on the loan?

Answer: First, determine the unpaid loan balance.

PV = PAY x ($A5/12/5\%$)
PV = $197.99 x 52.9907
PV = $10,491.63

The institution offers to lend $1,000 over and above the loan at a rate of 8% for five years. Determine the new payments that will amortize the wraparound loan.

$11,491.63 = PAY x ($A5/12/8\%$)
$11,491.63 = PAY x 49.3184
$233.01 = PAY

The institution receives $233.01 per month, of which $197.99 per month covers the initial loan. Thus, $35.02 per month is available for the amortization of the incremental $1,000 lent. Determine the yield that equates the loan with the payments.

PV = PAY x ($A5/12/r$)
$1,000 = $35.02 x $A5/12/r$
$28.56 = A5/12/r$

The annuity factor represents an interest rate of about 34%. Note that the wraparound payments include a higher rate on both the incremental and the existing loan. The institution receives interest on funds not additionally disbursed. As you can see, when a small amount of money is lent, the resulting return can be astronomical. The institution must ensure that appropriate consumer safeguards and disclosure are properly met.

EXAMINATION PROBLEMS

This section builds upon the present value and mortgage investment analysis foundation of the previous sections. Specifically, this section presents the numerical mechanics necessary for various phases of the examination process.

Real Estate Owned Financing

To facilitate the sale of real estate owned (REO), an institution may lend funds to a purchaser at submarket interest rates. Such a financing procedure induces a purchaser to pay a higher price for the REO. However, the actual monthly cash disbursement by the purchaser remains constant, more for the property and less for the financing.

The purchaser, except for tax benefits, is indifferent as long as the payment remains unchanged.

It is an unsound practice for an institution to fail to recognize losses based on the market value of consideration received when that price is inflated due to favorable lending terms. Failure to recognize such losses results in overstatement of an institution's net worth and net income. Though there is no legal objection to facilitating the sale of REO by favorable terms, the financial records should properly reflect the present value of consideration received. In addition, the institution should factor in the impact of points since points effectively raise the interest rate. The institution must evaluate the cash flows it receives at a market discount rate and compare the results with the book value of property.

Problem 16

Assume the book value of REO for an institution is $20,000. The institution may sell the REO for $22,000 with no money down and monthly payments sufficient to amortize a 6% loan over 10 years. The market rate for such a loan approximates 9%. The institution plans to credit $2,000 to the account "unearned profit on real estate owned." Obviously, the institution cannot directly credit the profit because it has not received a down payment. However, does the institution actually stand to profit by $2,000, the difference between book value and selling price?

Answer: Determine monthly payments necessary to amortize the $22,000 loan at the contract rate.

$PV = \text{PAY} \times (A10/12/6\%)$
$\text{PAY} = \$22,000 \div 90.073453$
$\text{PAY} = \$244.25$

Discount the monthly payments at the market rate.

$PV = \$244.25 \times (A10/12/9\%)$
$PV = \$244.25 \times 78.941693$
$PV = \$19,281.51$

Thus, the present value of the promised payments discounted at a market rate is $19,281.51. The more favorable interest rate offered the purchaser results in a $2,718 present value loss from the

$22,000 "selling" price. The actual loss from book value is $718 ($20,000 - $19,282), not a $2,000 gain.

The $2,000 differential price gain reflects the benefit of receiving lower financing charges. You may determine the gain or loss by the following alternative but analogous method:

Determine monthly payments necessary to amortize the $22,000 loan at a market rate.

$PV = \text{PAY} \times (A10/12/9\%)$
$\text{PAY} = \$22,000 \div 78.941693$
$\text{PAY} = \$278.69$

The institution should receive $278.69 per month. To facilitate the sale of REO, however, the institution accepted $244.25 per month. The financing benefit amounts to $34.44 per month ($278.69 - $244.25). Evaluate the present value of that cash flow stream lost.

$PV = \text{PAY} \times (A10/12/9\%)$
$PV = \$34.44 \times 78.941693$
$PV = \$2,718.75$

The loss on the REO financing may be seen more clearly when viewed from the cash flow per month not received. By either analytical method, the loss to book remains the same. In this case, the $2,718.75 represents the present value of the interest lost that the institution would have received had it made a loan at the current market interest rate.

The institution should record the transaction on its books as follows:

Account	Debit	Credit
Mortgage loans	$22,000	
Real estate owned		$20,000
Loss on sale of REO	718	
Unamortized discount on loans to facilitate		2,718

The discount (or imputed interest) should be accredited to interest income. Importantly, the institution must consider any financing benefit

offered to sell REO so as to maintain the financial record's integrity.

Problem 17

In some cases, the interest rate charged for a loan facilitates changes over the period of the loan. For example, assume the institution in Problem 16 requests a 6% rate for four years and an 8% rate for the remaining six years. Because a portion of the new loan has an interest cost closer to the market rate of 9%, the computed adjustment to book value is bound to be less. The present value of consideration received may be solved by a recursive process.

Answer: First, determine the monthly payments necessary to amortize the entire loan of $22,000 at the interest rate initially applicable, 6%. We completed this step in Problem 16. Payments necessary to amortize the loan on a monthly basis for 10 years at 6% are $244.25.

Second, determine the loan's outstanding balance at expiration of the first interest rate charged. In this case, monthly payments of $244.25 remain for six years.

$PV = \text{PAY} \times (A6/12/6\%)$
$PV = \$244.25 \times 60.339514$
$PV = \$14,737.93$

The loan balance of $14,737.93 must be paid over the remaining years of the loan. Determine the monthly payments necessary to amortize the existing loan balance at an 8% basis for six years. Because the interest rate is higher, the monthly payments should increase.

$PV = \text{PAY} \times (A6/12/8\%)$
$PV = \$14,737.93 \times .017533$
$PV = \$258.40$

Instead of receiving the monthly amount of $278.69 applicable to the market rate of interest as determined in Problem 16, the institution should receive monthly payments of $244.25 for four years and $258.40 for six years. The monthly financing concession amounts to $34.44 for four years ($278.69 - $244.25) and $20.29 for six years ($278.69 - $258.40). Next, discount the payments not received at the market rate. Note the

mechanics necessary to evaluate the last six years of payments.

$PV = \$34.44\ (A4/12/9\%) + \$20.29$
$[(A10/12/9\%) - (A4/12/9\%)]$

$PV = \$34.44\ (40.184782) + \$20.29$
$[78.941693 - 40.184782]$

$PV = \$1,383.96 + \$20.29\ (38.756911)$
$PV = \$1,383.96 + \$786.38$
$PV = \$2,170.34$

As expected, the present value of consideration not received is less when a portion of the loan to facilitate carries a higher interest rate. Again, though the process is not simple, you may compute the present value by stages.

Renegotiation of Existing Loans

Sometimes institutions offer attractive financing terms to current or prospective borrowers on existing loans. That is, an institution may renegotiate a loan such that the underlying property is not foreclosed into REO. Regardless of the financing advantage (that is, no interest, low interest, longer maturity, payment forbearance), determination of the appropriate accounting treatment is necessary as indicated by Statement of Financial Accounting Standards Nos. 15, 114, 118, and 121. For a more detailed discussion of this topic, turn to Handbook Section 240, Troubled Debt Restructurings.

Unsold Real Estate Owned

There are a number of instances in which real estate owned is not sold immediately after acquisition. Often, an institution acquires a land development project before completion, and it must invest additional funds before the property can be sold. Apartments and office rental units may be held until the occupancy ratio has increased sufficiently to reduce the income risk. Finally, the market may not be capable of absorbing the property, and the institution may have to wait until it improves. No matter what the reason, the important point is that the institution should consider a holding period in analyzing the property.

Prudent REO management practices and applicable regulations require that the institution have all pieces of REO appraised at the time of acquisition to determine whether or not the institution should establish reserves for potential losses. An appropriate method for estimating the value of income-producing property, and one that the institution should consider in the appraisal process, is to discount the forecasted cash flows at an appropriate rate. This rate should earn an internal rate of return comparable with projects with similar risk.

Partly Developed Real Estate Owned (Requiring Capital Additions)

Problem 18

Assume that the institution foreclosed on a piece of property with a current loan balance of $7,000,000. The property is not completely developed, and cost estimates for completion are as follows:

Year 1: $45,000 per month, or $540,000 per year
Year 2: $30,000 per month, or $360,000 per year
Year 3: $16,000 per month, or $192,000 per year

At the end of three years, the completed project can be sold for $10,000,000.

Should the institution establish a valuation allowance, and if so, how much?

For this example, assume that the required internal rate of return for projects with similar risk is 10%.

Step 1 - Determine discount cash inflows.

Sales Price = $10,000,000

$PV = Sum$ x $(Sn/m/r)$
$PV = \$10,000,000$ x $(S3/12/10\%)$
$PV = \$10,000,000$ x .741740
$PV = \$7,417,400$

Step 2 - Determine discount cash outflows.

$PV = Pay$ x $(An/m/r)$ x $(Sn/m/r)$

Year 1 $PV = \$45,000$ x $(A1/12/10\%)$

$PV = \$45,000$ x 11.374508 $PV = \$511,853$

Year 2 $PV = 30,000$ x $(A1/12/10\%)$ x $(S1/12/10\%)$
$PV = 30,000$ x 11.374508 x .905212
$PV = \$308,890$

Year 3 $PV = 16,000$ x $(A1/12/10\%)$ x $(S2/12/10\%)$
$PV = 16,000$ x 11.374508 x .819410
$PV = \$149,126$

Total Discounted Cash Outflow =
$511,853 + $308,890 +$149,126 = $969,869

Step 3 - Determine net present value of property.

$NPV = PV$ Inflows - PV Outflows
$NPV = \$7,417,400$ - $969,869
$NPV = \$6,447,531$ say $6,447,500

Step 4 - Compare net present value of property with the outstanding balance of the loan.

Loan Balance $7,000,000
NPV   6,447,500
                      $ 552,500

Because the property's estimated value is only $6,447,500, the institution should establish a valuation allowance of $552,500. The institution should reevaluate the project periodically and make adjustments to the valuation allowance account.

Fully Developed Real Estate Owned (Holding Until the Market Improves)

Problem 19

A second type of project an institution may acquire is one in which the occupancy ratio is increasing and that will not be sold until the ratio levels out at the expected ratio.

Institution XYZ acquired a completed apartment building with a book value of $6,750,000. The occupancy ratio is not sufficiently high to attract a buyer. The building has 400 units available for rental at $250 per month. Projected occupancy

ratios and operating expense/gross operating income ratios are as follows:

Year	Occupancy Ratio	Operating Expense Ratio
1	50%	45%
2	85%	40%
Thereafter	95%	35%

The effective remaining life of the property is 50 years, giving a straight-line recapture rate of 2%. The institution expects a return on the investment of 10% and will sell the property after the second year.

Step 1 - Determine cash flows.

Year 1 Gross Income = No. Units x Monthly Rental x Occupancy Ratio = 400 x $250 x .50 = $50,000 per month

Net Operating Income = Gross Income x (1 - Operating Expense Ratio) = $50,000 x (1 - .45) = $27,500 per month

Year 2 Gross Income = $400 x 250 x .85 = $85,000 per month

Net Operating Income = $85,000 x (1 - .40) = $51,000 per month

After Year 2 GI = $400 x 250 x .95 = $95,000 per month

Net Operating Income = $95,000 x (1 - .35) = $61,750 per month

Capitalization Rate = .12

Annualized Net Operating Income = $61,750 x 12 = $741,000

Sales Price = (AN. NOI) ÷ (CAP. RATE) = $741,000/.12 = $6,175,000

Step 2 - Determine discount cash flows.

Again, the discount rate was determined to be 10%.

Year 1 PV = 27,500 x ($An/m/r$) = 27,500 x ($A1/12/10\%$) = 27,500 x 11.374508 = 312,799

Year 2 PV = 51,000 x ($A1/12/10\%$) x ($S1/12/10\%$) = 51,000 x 11.374508 x .905212 = 525,113

PV = \$6,175,000 x ($S\ 2/12/10\%$)
PV = \$6,175,000 x .819410
PV = \$5,059,857

Total PV = \$312,799 + \$525,113 + \$5,059,857 = \$5,897,769 say \$5,898,000

Step 3 - Compare book value with the present value.

Book Value	$6,750,000
PV	5,898,000
Loss	852,000

Because the present value is less than the book value, the institution should establish an $852,000 valuation allowance.

In appraising real estate owned, the method of discounting forecasted cash flows should be considered. It identifies the cash inflows to be received and the outflows to be paid and accounts for the holding period before a project can or will be sold.

Portfolio Valuation

According to the Accounting Principles Board (APB) No. 16 Business Combinations as amended, an acquiring corporation using the purchase accounting method should allocate the cost of an acquired company to the identifiable individual assets acquired and liabilities assumed based on their relative fair values.

APB No. 16 also provides general guidelines for assigning amounts to individual assets acquired. These guidelines include the valuation of receivables "at present values of amounts to be received determined at appropriate current interest rates, less allowances for uncollectibility and collection costs, if necessary." Given the high proportion of receivables for thrift institutions, accurate valuation is important. Generally, the loan portfolio of an acquired institution is revalued when the port-

folio's average yield is different from the current required yield.

Problem 20

Assume the institution is acquiring a loan portfolio with a $1,000,000 book value. The average yield of the portfolio is 7.5%, and the current market yield is 9.0%. The average remaining contractual life of the portfolio is 25 years.

Because of prepayments, however, the projected average life of the portfolio is only 10 years. What is the current market value of the loan portfolio?

Based upon these assumptions, sufficient data exist for the proper evaluation of the loan portfolio. In effect, determine what price an investor would pay so that the investor earns a current market yield on the investment.

As indicated by APB No. 16, first determine the cash flow "amounts to be received." A loan portfolio represents an equal monthly stream of payments that include both interest and principal amortization for the life of the contract. Prepayment assumptions, however, shorten the contract life and are recognized as a large lump sum payment in a future period.

Step 1 - Determine cash flows.

Monthly payments

$PV = \text{PAY}(An/m/r)$
$\text{PAY} = PV \div (A25/12/7.5\%)$
$\text{PAY} = \$1,000,000 \div 135.319613$
$\text{PAY} = \$7,389.91$

Monthly payments of $7,389.91 would amortize a $1,000,000 loan over 25 years and return a 7.5% yield to the lender.

Payoff balance

$PV = \text{PAY} (An/m/r)$
$PV = \$7,389.91 \text{ x } (A15/12/7.5\%)$
$PV = \$7,389.91 \text{ x } 107.873427$
$PV = \$797,174.92$

The book value of the loan as of the tenth year is $797,174.92. As indicated, the book value is simply the discount of the remaining 15 years of payments at the portfolio rate of interest, 7.5%. Because the repayment occurs in the future, the amount is known as a sum in the following market valuation.

Step 2 -Discount cash flows at current market rate.

$PV = \text{PAY} (An/m/r) + Sum (Sn/m/r)$
$PV = \$7,389.91(A10/12/9.0\%) +$
$\$797,174.92(S10/12/9\%)$
$PV = \$7,389.91(78.941693) +$
$\$797,174.92(0.407937)$
$PV = \$908,569.15$

The market value of the loan portfolio is $908,569.15. This figure is the present value of the 10 years of monthly loan payments plus the present value of the loan repayment, all discounted at the desired current yield of 9%.

When revaluation is warranted, the discounted cash flow method embodies the intended thrust of APB No. 16. However, the institution must exercise care in the use of qualifying assumptions. Rarely is a loan portfolio homogeneous in yield, maturity, and risk. Obviously, changes in the assumed portfolio yield, average remaining life, average remaining projected life, and current required market yield affect the current market value. Within this framework, however, the discounted cash flow method generates an accurate fair value.

SALE/LEASEBACK EVALUATION

The Theory

A sale/leaseback is a variation of a financial lease. Financial leases provide a lessee with many values otherwise associated with outright ownership. The period of the lease generally approximates the remaining economic life of the asset. The lessee contractually commits to the lessor payment of funds that cumulatively exceed the current market price of the property. Although the lessee may terminate an operating lease, such as telephone service, upon proper notice, the lessee

many not cancel a financial lease. In effect, a financial lease provides a financing vehicle for the lessee and is so regarded by accounting theorists.

In a sale/leaseback, the prospective lessee receives current funds in exchange for the asset. Simultaneously, the lessee receives the continued use of the asset in consideration for future lease payments. The sale/leaseback is a contrast between current funds inflow and anticipated funds outflow. A decision model must capture the timing of the after-tax funds flow. Next year's dollar is worth something less than today's. In simplest terms, the "cost" of a sale/leaseback is the rate of interest that equates future payments to the current sales receipt. As lease payments increase relative to a given sale price, the cost of the lease increases. That is, only a higher rate of discount forces the equation between inflow and higher outflows. For a sale/leaseback to be considered advantageous, the cost of the lease should be less than an appropriate benchmark criterion. The benchmark depends on the use of the sale price: after-tax cost of funds for a contracting institution, and after-tax investment return for an expanding institution.

Cost of Leasing

Before-Tax

Equation 3

$$\text{Sales Price} = \sum_1^n \frac{n \text{ Lease Pay } t}{(1+r)^t}$$

The before-tax cost of leasing is the rate, *r*, that forces equation of the sale price to the annual lease payments paid until year *n*. The advantages of leasing, however, are heavily dependent upon avoidance of taxes.

After-Tax

Equation 4

$$\text{Sales Price} = \sum_1^n \frac{n \text{ Lease Pay } t}{(1+r)^t}$$

$$+ \sum \frac{n(\text{Lease Pay } t - \text{Depr } t)\text{tax rate}}{(1+r)^t}$$

Estimate cash flows on an after-tax basis by determining the legitimate expenses incurred by leasing and those expenses missed as a result of not owning. Lease payments provide an effective tax shield because annual taxes are reduced by lease payments times the tax rate. On the other hand, the right to depreciate property that is not owned is lost. To the extent that lease payments exceed depreciation charges, an effective tax shield is generated. The tax shield reduces the after-tax cash payments and accordingly lowers the after-tax cost of the sale/leaseback.

Problem 21

Assume an institution currently owns an office building and land carried at respective book values of $800,000 and $200,000. Management considers the value of such property will be negligible after 20 years if demolition costs equal the land's residual value. A prospective lessor approaches the institution and offers $1 million cash in exchange for 20 annual payments of $117,454.

Equation 5

$$\$1,000,000 = \sum_1^{20} \frac{\$117,454}{(1+r)^t}$$

$PV = \text{PAY} (An/m/r)$
$\$1,000,000 = \$117,454 (A20/l/r)$
$8.514 = (A20/l/r)$
$r = 10\%$, the before-tax cost of leasing

After-Tax

Assume a tax rate of 25% and "lost" depreciation charges of $40,000 per year ($800,000 ÷ 20 years.) The depreciation base is limited to $800,000 since land is excluded from consideration.

Equation 6

$$\$1,000,000 = \sum_{1}^{20} \frac{\$117,454}{(1+r)^t}$$

$$+ \sum_{1}^{20} \frac{(\$117,454 - \$40,000).25}{(1+r)^t}$$

$PV = \text{PAY} (An/m/r)$
$\$1,000,000 = (\$117,454 - \$19,364)(A20/l/r)$
$\$1,000,000 = \$98,090 (A20/l/r)$
$10.195 = A20/l/r$
$r = 7.49\%$, the after-tax cost of leasing

The after-tax cost of leasing, r, increases as the sales price declines, the tax rate declines, the missed depreciation charges increase, or the lease payments increase. Is the sale/leaseback a good deal for the institution? That depends. If the institution uses the sales price to retire debt with an after-tax cost of less than 7.49%, the answer is no. If the institution uses the funds to expand investments earning greater than 7.49% after taxes, the answer may be yes.

Why the qualified answer? To this point, the example contains simplifying and, to a certain extent, unrealistic assumptions. Most institutions would use an accelerated depreciation. The reduction of early-term avoidance of taxes and higher time value of money increases the cost of leasing. Many properties have an expected residual value that affects depreciation schedules. Also, any residual values belong to the lessor, not the lessee, and increase the cost of leasing. Alternatively, the sales price in the sale/leaseback may be less than actually stated. For example, if an institution pro-

vides the lessor with purchase money at less than market rates, the lessor must similarly reduce the effective sale price. The institution must consider the effects of such refinements to either the right side or the left side of the equation.

Sale/Partial Leaseback After Taxes

In some instances, an institution owns a building far larger than internal requirements dictate. Consequently, the institution may prudently lease part of the office space to other tenants. If the institution subsequently decides to sell its building and leases back only a portion of the office space, the effective cost of the sale/partial leaseback may still be calculated. The sales price reflects the sum of the seller's partial leaseback and the lease payments of the other tenants. Computation of the cost of the sale/partial leaseback is analogous to the previously discussed sale/leaseback. The cost is the rate of discount that equates the sales price to a discounted sum of the seller's annual partial lease payments, plus the other tenant's annual lease payments, minus the annual tax shield. Again, as a result of not owning, the prospective lessee loses the opportunity to depreciate. On the other hand, taxable expenses are increased by the lease charges, and taxable income is reduced by not including the other tenants' lease payments.

In fact, the cost of a sale/partial leaseback should be similar to that of a sale/leaseback if other tenants are paying the market price for leasing. Continuing the previous example, assume other tenants were leasing office space at $90,000 per year and will continue to lease regardless of the building's owner. Further, the institution contract calls for annual lease payments of $27,454.

Equation 7

$$\$1,000,000 = \sum_{1}^{20} \frac{\$27,454}{(1+r)^t} + \sum_{1}^{20} \frac{\$90,000}{(1+r)^t}$$

$$+ \sum_{1}^{20} \frac{[(\$27,454 - \$40,000 + \$90,000).25]}{(1+r)^t}$$

$PV = \text{PAY} (An/m/r)$
$\$1,000,000 = (\$117,454 - 19,364)(A20/l/r)$
$\$1,000,000 = \$98,090 (A20/l/r)$
$10.195 = (A20/l/r)$
$r = 7.49\%$, the after-tax cost of the sale/partial leaseback

In some cases, the other tenants do not lease at a current market rate. As a result, the purchaser either pays a lower sales price or requires higher lease payments from the seller. Of course, either action increases the effective cost of the sale/ partial leaseback. The higher costs may indicate the economic reality of the present value of the tenants' lease payment, as opposed to a poor managerial decision by institution management.

Statement of Financial Accounting Standards No. 13, as amended, discusses the accounting implications for sale/leaseback transactions.

REFERENCES

Financial Accounting Standards Board, Statement of Financial Accounting Standards

No. 13	Accounting for Leases
No. 15	Accounting by Debtors and Creditors for Troubled Debt Restructurings
No. 114	Accounting by Creditors for Impairment of a Loan
No. 118	Accounting by Creditors for Impairment of a Loan – Income Recognition and Disclosure
No. 121	Accounting for the Impairment of Long-Lived Assets and Long-Lived Assets to be Disposed of

Accounting Principles Board (APB) Opinions

No. 16	Business Combinations

Present and Future Values

Sum of an Annuity of $1 Per Period for n Periods

Period	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%
1	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2	2.040	2.050	2.060	2.070	2.080	2.090	2.100	2.120	2.140	2.150
3	3.122	3.153	3.184	3.215	3.246	3.278	3.310	3.374	3.440	3.473
4	4.246	4.310	4.375	4.440	4.506	4.573	4.641	4.779	4.921	4.993
5	5.416	5.526	5.637	5.751	5.867	5.985	6.105	6.353	6.610	6.742
6	6.633	6.802	6.975	7.153	7.336	7.523	7.716	8.115	8.536	8.754
7	7.898	8.142	8.394	8.654	8.923	9.200	9.487	10.089	10.730	11.067
8	9.214	9.549	9.897	10.260	10.637	11.028	11.436	12.300	13.233	13.727
9	10.583	11.027	11.491	11.978	12.488	13.021	13.579	14.776	16.085	16.786
10	12.006	12.578	13.181	13.816	14.487	15.193	15.937	17.549	19.337	20.304
11	13.486	14.207	14.972	15.784	16.645	17.560	18.531	20.655	23.045	24.349
12	15.026	15.917	16.870	17.888	18.977	20.141	21.384	24.133	27.271	29.002
13	16.627	17.713	18.882	20.141	21.495	22.953	24.523	28.029	32.089	34.352
14	18.292	19.599	21.015	22.550	24.215	26.019	27.975	32.393	37.581	40.505
15	20.024	21.579	23.276	25.129	27.152	29.361	31.772	37.280	43.842	47.580
16	21.825	23.657	25.673	27.888	30.324	33.003	35.950	42.753	50.980	55.717
17	23.698	25.840	28.213	30.840	33.750	36.974	40.545	48.884	59.118	65.075
18	25.645	28.132	30.906	33.999	37.450	41.301	45.599	55.750	68.394	75.836
19	27.671	30.539	33.760	37.379	41.446	46.018	51.159	63.440	78.969	88.212
20	29.778	33.066	36.786	40.995	45.762	51.160	57.275	72.052	91.025	102.444
21	31.969	35.719	39.993	44.865	50.423	56.765	64.002	81.699	104.768	118.810
22	34.248	38.505	43.392	49.006	55.457	62.873	71.403	92.503	120.436	137.632
23	36.618	41.430	46.996	53.436	60.893	69.532	79.543	104.603	138.297	159.276
24	39.083	44.502	50.816	58.177	66.765	76.790	88.497	118.155	158.659	184.168
25	41.646	47.727	54.865	63.249	73.106	84.701	98.347	133.334	181.871	212.793
26	44.312	51.113	59.156	68.676	79.954	93.324	109.182	150.334	208.333	245.712
27	47.084	54.669	63.706	74.484	87.351	102.723	121.100	169.374	238.499	283.569
28	49.968	58.403	68.528	80.698	95.339	112.968	134.210	190.699	272.889	327.104
29	52.966	62.323	73.640	87.347	103.966	124.135	148.631	214.583	312.094	377.170
30	56.085	66.439	79.058	94.461	113.283	136.308	164.494	241.333	356.787	434.745
40	95.026	120.800	154.762	199.635	259.057	337.882	442.593	767.091	1342.025	1779.090
50	152.667	209.348	290.336	406.529	573.770	815.084	1163.909	2400.018	4994.521	7217.716
60	237.991	353.584	533.128	813.520	1253.213	1944.792	3034.816	7471.641	18535.130	29219.990

Present Value of an Annuity of $1 Per Period for n Periods

Number of Payments	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%
1	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.8929	0.8772	0.8696
2	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.6901	1.6467	1.6257
3	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4018	2.3216	2.2832
4	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.0373	2.9137	2.8550
5	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6048	3.4331	3.3522
6	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.1114	3.8887	3.7845
7	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684	4.5638	4.2883	4.1604
8	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349	4.9676	4.6389	4.4873
9	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590	5.3282	4.9464	4.7716
10	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.6502	5.2161	5.0188
11	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	5.9377	5.4527	5.2337
12	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.1944	5.6603	5.4206
13	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.4235	5.8424	5.5831
14	10.5631	9.8986	9.2950	8.7455	8.2442	7.7862	7.3667	6.6282	6.0021	5.7245
15	11.1184	10.3797	9.7122	9.1079	8.5595	8.0607	7.6061	6.8109	6.1422	5.8474
16	11.6523	10.8378	10.1059	9.4466	8.8514	8.3126	7.8237	6.9740	6.2651	5.9542
17	12.1657	11.2741	10.4773	9.7632	9.1216	8.5436	8.0216	7.1196	6.3729	6.0472
18	12.6593	11.6896	10.8276	10.0591	9.3719	8.7556	8.2014	7.2497	6.4674	6.1280
19	13.1339	12.0853	11.1581	10.3356	9.6036	8.9501	8.3649	7.3658	6.5504	6.1982
20	13.5903	12.4622	11.4699	10.5940	9.8181	9.1285	8.5136	7.4694	6.6231	6.2593
25	15.6221	14.0939	12.7834	11.6536	10.6748	9.8226	9.0770	7.8431	6.8729	6.4641
30	17.2920	15.3725	13.7648	12.4090	11.2578	10.2737	9.4269	8.0552	7.0027	6.5660
40	19.7928	17.1591	15.0463	13.3317	11.9246	10.7574	9.7791	8.2438	7.1050	6.6418
50	21.4822	18.2559	15.7619	13.8007	12.2335	10.9617	9.9148	8.3045	7.1327	6.6605
60	22.6235	18.9293	16.1614	14.0392	12.3766	11.0480	9.9672	8.3240	7.1401	6.6651

Future Value of $1 at the End of n Periods

Period	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%
1	1.0400	1.0500	1.0600	1.0700	1.0800	1.0900	1.1000	1.1200	1.1400	1.1500
2	1.0816	1.1025	1.1236	1.1449	1.1664	1.1881	1.2100	1.2544	1.2996	1.3225
3	1.1249	1.1576	1.1910	1.2250	1.2597	1.2950	1.3310	1.4049	1.4815	1.5209
4	1.1699	1.2155	1.2625	1.3108	1.3605	1.4116	1.4641	1.5735	1.6890	1.7490
5	1.2167	1.2763	1.3382	1.4026	1.4693	1.5386	1.6105	1.7623	1.9254	2.0114
6	1.2653	1.3401	1.4185	1.5007	1.5869	1.6771	1.7716	1.9738	2.1950	2.3131
7	1.3159	1.4071	1.5036	1.6058	1.7138	1.8280	1.9487	2.2107	2.5023	2.6600
8	1.3686	1.4775	1.5938	1.7182	1.8509	1.9926	2.1436	2.4760	2.8526	3.0590
9	1.4233	1.5513	1.6895	1.8385	1.9990	2.1719	2.3579	2.7731	3.2519	3.5179
10	1.4802	1.6289	1.7908	1.9672	2.1589	2.3674	2.5937	3.1058	3.7072	4.0456
11	1.5395	1.7103	1.8983	2.1049	2.3316	2.5804	2.8531	3.4785	4.2262	4.6524
12	1.6010	1.7959	2.0122	2.2522	2.5182	2.8127	3.1384	3.8960	4.8179	5.3503
13	1.6651	1.8856	2.1329	2.4098	2.7196	3.0658	3.4523	4.3635	5.4924	6.1528
14	1.7317	1.9799	2.2609	2.5785	2.9372	3.3417	3.7975	4.8871	6.2613	7.0757
15	1.8009	2.0789	2.3966	2.7590	3.1722	3.6425	4.1772	5.4736	7.1379	8.1371
16	1.8730	2.1829	2.5404	2.9522	3.4259	3.9703	4.5950	6.1304	8.1372	9.3576
17	1.9479	2.2920	2.6928	3.1588	3.7000	4.3276	5.0545	6.8660	9.2765	10.7613
18	2.0258	2.4066	2.8543	3.3799	3.9960	4.7171	5.5599	7.6900	10.5752	12.3755
19	2.1068	2.5270	3.0256	3.6165	4.3157	5.1417	6.1159	8.6128	12.0557	14.2318
20	2.1911	2.6533	3.2071	3.8697	4.6610	5.6044	6.7275	9.6463	13.7435	16.3665
21	2.2788	2.7860	3.3996	4.1406	5.0338	6.1088	7.4002	10.8038	15.6676	18.8215
22	2.3699	2.9253	3.6035	4.4304	5.4365	6.6586	8.1403	12.1003	17.8610	21.6447
23	2.4647	3.0715	3.8197	4.7405	5.8715	7.2579	8.9543	13.5523	20.3616	24.8915
24	2.5633	3.2251	4.0489	5.0724	6.3412	7.9111	9.8497	15.1786	23.2122	28.6252
25	2.6658	3.3864	4.2919	5.4274	6.8485	8.6231	10.8347	17.0001	26.4619	32.9190
26	2.7725	3.5557	4.5494	5.8074	7.3964	9.3992	11.9182	19.0401	30.1666	37.8568
27	2.8834	3.7335	4.8223	6.2139	7.9881	10.2451	13.1100	21.3249	34.3899	43.5353
28	2.9987	3.9201	5.1117	6.6488	8.6271	11.1671	14.4210	23.8839	39.2045	50.0656
29	3.1187	4.1161	5.4184	7.1143	9.3173	12.1722	15.8631	26.7499	44.6931	57.5755
30	3.2434	4.3219	5.7435	7.6123	10.0627	13.2677	17.4494	29.9599	50.9502	66.2118
40	4.8010	7.0400	10.2857	14.9745	21.7245	31.4094	45.2593	93.0510	188.8835	267.8635
50	7.1067	11.4674	18.4202	29.4570	46.9016	74.3575	117.3909	289.0022	700.2330	1083.6600
60	10.5196	18.6792	32.9877	57.9464	101.2571	176.0313	304.4816	897.5969	2595.9200	4384.0000

Present Value of $1

Period	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%
1	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.8929	0.8772	0.8696
2	0.9246	0.9070	0.8900	0.8734	0.8573	0.8417	0.8264	0.7972	0.7695	0.7561
3	0.8890	0.8638	0.8396	0.8163	0.7938	0.7722	0.7513	0.7118	0.6750	0.6575
4	0.8548	0.8227	0.7921	0.7629	0.7350	0.7084	0.6830	0.6355	0.5921	0.5718
5	0.8219	0.7835	0.7473	0.7130	0.6806	0.6499	0.6209	0.5674	0.5194	0.4972
6	0.7903	0.7462	0.7050	0.6663	0.6302	0.5963	0.5645	0.5066	0.4556	0.4323
7	0.7599	0.7107	0.6651	0.6227	0.5835	0.5470	0.5132	0.4523	0.3996	0.3759
8	0.7307	0.6768	0.6274	0.5820	0.5403	0.5019	0.4665	0.4039	0.3506	0.3269
9	0.7026	0.6446	0.5919	0.5439	0.5002	0.4604	0.4241	0.3606	0.3075	0.2843
10	0.6756	0.6139	0.5584	0.5083	0.4632	0.4224	0.3855	0.3220	0.2697	0.2472
11	0.6496	0.5847	0.5268	0.4751	0.4289	0.3875	0.3505	0.2875	0.2366	0.2149
12	0.6246	0.5568	0.4970	0.4440	0.3971	0.3555	0.3186	0.2567	0.2076	0.1869
13	0.6006	0.5303	0.4688	0.4150	0.3677	0.3262	0.2897	0.2292	0.1821	0.1625
14	0.5775	0.5051	0.4423	0.3878	0.3405	0.2992	0.2633	0.2046	0.1597	0.1413
15	0.5553	0.4810	0.4173	0.3624	0.3152	0.2745	0.2394	0.1827	0.1401	0.1229
17	0.5134	0.4363	0.3714	0.3166	0.2703	0.2311	0.1978	0.1456	0.1078	0.0929
18	0.4936	0.4155	0.3503	0.2959	0.2502	0.2120	0.1799	0.1300	0.0946	0.0808
19	0.4746	0.3957	0.3305	0.2765	0.2317	0.1945	0.1635	0.1161	0.0829	0.0703
20	0.4564	0.3769	0.3118	0.2584	0.2145	0.1784	0.1486	0.1037	0.0728	0.0611
25	0.3751	0.2953	0.2330	0.1842	0.1460	0.1160	0.0923	0.0588	0.0378	0.0304
30	0.3083	0.2314	0.1741	0.1314	0.0994	0.0754	0.0573	0.0334	0.0196	0.0151
40	0.2083	0.1420	0.0972	0.0668	0.0460	0.0318	0.0221	0.0107	0.0053	0.0037
50	0.1407	0.0872	0.0543	0.0339	0.0213	0.0134	0.0085	0.0035	0.0014	0.0009
60	0.0951	0.0535	0.0303	0.0173	0.0099	0.0057	0.0033	0.0011	0.0004	0.0002

Present Value of $1 at a Stated Annual Interest Rate Compounded Monthly

Number of Years	4%	5%	6%	7%	8%	9%	10%	11%	12%	14%
1	0.9609	0.9513	0.9419	0.9326	0.9234	0.9142	0.9052	0.8963	0.8874	0.8701
2	0.9232	0.9050	0.8872	0.8697	0.8526	0.8358	0.8194	0.8033	0.7876	0.7570
3	0.8871	0.8610	0.8356	0.8111	0.7873	0.7641	0.7417	0.7200	0.6989	0.6586
4	0.8524	0.8191	0.7871	0.7564	0.7269	0.6986	0.6714	0.6453	0.6203	0.5731
5	0.8190	0.7792	0.7414	0.7054	0.6712	0.6387	0.6078	0.5784	0.5504	0.4986
6	0.7869	0.7413	0.6983	0.6578	0.6198	0.5839	0.5502	0.5184	0.4885	0.4338
7	0.7561	0.7052	0.6577	0.6135	0.5723	0.5338	0.4980	0.4646	0.4335	0.3774
8	0.7265	0.6709	0.6195	0.5721	0.5284	0.4881	0.4508	0.4164	0.3847	0.3284
9	0.6981	0.6382	0.5835	0.5336	0.4879	0.4462	0.4081	0.3733	0.3414	0.2857
10	0.6708	0.6072	0.5496	0.4976	0.4505	0.4079	0.3694	0.3345	0.3030	0.2486
11	0.6445	0.5776	0.5177	0.4641	0.4160	0.3730	0.3344	0.2998	0.2689	0.2163
12	0.6193	0.5495	0.4876	0.4328	0.3841	0.3410	0.3027	0.2687	0.2386	0.1882
13	0.5950	0.5228	0.4593	0.4036	0.3547	0.3117	0.2740	0.2409	0.2118	0.1637
14	0.5717	0.4973	0.4326	0.3764	0.3275	0.2850	0.2480	0.2159	0.1879	0.1425
15	0.5494	0.4731	0.4075	0.3510	0.3024	0.2605	0.2245	0.1935	0.1668	0.1240
20	0.4499	0.3686	0.3021	0.2476	0.2030	0.1664	0.1365	0.1119	0.0918	0.0618
25	0.3685	0.2872	0.2240	0.1747	0.1362	0.1063	0.0829	0.0647	0.0505	0.0308
30	0.3018	0.2238	0.1660	0.1232	0.0914	0.0679	0.0504	0.0374	0.0278	0.0154

Present Value of an Annuity of $1 per Month for n Years

Number of Years	4%	5%	6%	7%	8%	9%	10%	11%	12%	14%
1	11.7440	11.6812	11.6189	11.5571	11.4958	11.4349	11.3745	11.3146	11.2551	11.1375
2	23.0283	22.7939	22.5629	22.3351	22.1105	21.8891	21.6709	21.4556	21.2434	20.8277
3	33.8708	33.3657	32.8710	32.3865	31.9118	31.4468	30.9912	30.5449	30.1075	29.2589
4	44.2888	43.4230	42.5803	41.7602	40.9619	40.1848	39.4282	38.6914	37.9740	36.5945
5	54.2991	52.9907	51.7256	50.5020	49.3184	48.1734	47.0654	45.9930	44.9550	42.9770
6	63.9174	62.0928	60.3395	58.6544	57.0345	55.4768	53.9787	52.5373	51.1504	48.5302
7	73.1593	70.7518	68.4530	66.2573	64.1593	62.1540	60.2367	58.4029	56.6485	53.3618
8	82.0393	78.9894	76.0952	73.3476	70.7380	68.2584	65.9015	63.6601	61.5277	57.5655
9	90.5718	86.8261	83.2934	79.9598	76.8125	73.8394	71.0294	68.3720	65.8578	61.2231
10	98.7702	94.2814	90.0735	86.1264	82.4215	78.9417	75.6712	72.5953	69.7005	64.4054
11	106.6476	101.3737	96.4596	91.8771	87.6006	83.6064	79.8730	76.3805	73.1108	67.1742
12	114.2167	108.1209	102.4747	97.2402	92.3828	87.8711	83.6765	79.7731	76.1372	69.5833
13	121.4895	114.5397	108.1404	102.2417	96.7985	91.7700	87.1195	82.8139	78.8229	71.6793
14	128.4776	120.6461	113.4770	106.9061	100.8758	95.3346	90.2362	85.5392	81.2064	73.5029
15	135.1921	126.4552	118.5035	111.2560	104.6406	98.5934	93.0574	87.9819	83.3217	75.0897
20	165.0219	151.5253	139.5808	128.9825	119.5543	111.1450	103.6246	96.8815	90.8194	80.4168
25	189.4525	171.0600	155.2069	141.4869	129.5645	119.1616	110.0472	102.0290	94.9466	83.0730
30	209.4612	186.2816	166.7916	150.3076	136.2835	124.2819	113.9508	105.0063	97.2183	84.3973

Keystrokes

Hewlett-Packard HP-12C calculator key-stroke sequences and solutions for problems 1 though 21:

Problem 1

Keystrokes			Display
1.	2,000	CHS PV	-2,000.00
2.	20	n	20.00
3.	6	i	6.00
4.		FV	$6,414.27

Problem 2

Keystrokes		Display
1.	5,000	FV	5,000.00
2.	10	n	10.00
3.	4	i	4.00
4.		PV	-$3,377.82

Problem 3

Keystrokes			Display
1.	8	i	8.00
2.	1	CHS PV	1.00
3.	2	FV	2.00
4.		n	10.00 years

Due to a rounding error, the calculator solution to problem three is ten years. The precise answer is somewhere between nine and ten years; however, the calculator is programmed to round the periods up since interest would not be credited until the end of each compounding period.

Problem 4

Keystrokes			Display
1.	1,000	CHS PV	-1,000.00
2.	7	ENTER	7.00
3.	2	÷ i	3.50
4.	4	ENTER	4.00
5.	2	x n	8.00
6.		FV	1,316.81
7.		STO 1	1,316.81
8.	0	FV	0.00
9.	4	n	4.00
10.	7	i	7.00
11.		FV	1,310.80
12.		RCL 1 –	-$6.01

Problem 5

Keystrokes		Display
1.	250,000	FV	250,000.00
2.	4	n	4.00
3.	12	i	12.00
4.		PV	-$158,879.00

Problem 6

Keystrokes			Display
1.	30	CHS PV	30.00
2.	70	FV	70.00
3.	15	n	15.00
4.		i	5.81%

Problem 7

Keystrokes		Display
1.	700	PMT	700.00
2.	9	n	9.00
3.	10	i	10.00
4.		PV	-$4,031.32

Problem 8

	Keystrokes			Display
1.	9.5	g	i	0.79
2.	20	g	n	240.00
3.	40,000	PV		40,000.00
4.		PMT		-$372.85

Problem 9

	Keystrokes			Display
1.	60	PMT		60.00
2.	10	n		10.00
3.	9	i		9.00
4.		PV		-385.06
5.		STO	1	-385.06
6.	0	PMT		0.00
7.	1,000	FV		1,000.00
8.		PV		-422.41
9.		RCL	1 +	-$807.47

Problem 10

	Keystrokes			Display
1.	10	g	i	0.83
2.	30	g	n	360.00
3.	50,000	CHS	PV	-50,000.00
4.		PMT		-$438.79

Problem 11

	Keystrokes			Display
1.	10	g	i	0.83
2.	30	g	n	360.00
3.	50,000	CHS	PV	-50,000.00
4.		PMT		438.79
5.	5	g	n	60.00
6.		FV		48,287.16
7.		STO	1	48,287.16
8.	0	FV		0.00
9.	25	g	n	300.00
10.	8.75	g	i	0.73
11.		PV		-53,370.94
12.		RCL	1 +	-$5,083.78

Problem 12

	Keystrokes			Display
1.	50,000	CHS	PV	-50,000.00
2.	7	g	i	0.58
3.	30	g	n	360.00
4.		PMT		332.65
5.		RCL	PV	-50,000.00
6.	4	%	–	-48,000.00
7.		PV		-48,000.00
8.		i		0.62
9.		g	n	7.41 %

Problem 13

	Keystrokes			Display
1.	50,000	PV		50,000.00
2.	7	g	i	0.58
3.	30	g	n	360.00
4.		PMT		-332.65
5.	5	g	n	60.00
6.		FV		-47,065.79
7.		CHS	STO 1	47,065.79
8.	0	FV		0.00
9.	30	g	n	360.00
10.	48,000	PV		48,000.00
11.		i		0.62
12.	5	g	n	60.00
13.		FV		-45,375.34
14.		RCL	1 PV	47,065.79
15.		i		0.66
16.		g	n	7.89 %

Problem 14

	Keystrokes			Display
1.	50,000	CHS	PV	-50,000.00
2.	30	g	n	360.00
3.	10	g	i	0.83
4.		PMT		438.79
5.	5	g	n	60.00
6.		FV		48,287.16
7.	0.5	x		24,143.58
8.	0.1	x		2,414.36
9.		RCL	FV +	50,701.52
10.		FV		50,701.52
11.		i		0.90
12.		g	n	10.74 %

Problem 15

	Keystrokes			Display
1.	30,000	CHS	PV	-30,000.00
2.	5	g	i	0.42
3.	20	g	n	240.00
4.		PMT		197.99
5.		STO	1	197.99
6.	15	g	n	180.00
7.		FV		10,491.46
8.	1,000	+		11,491.46
9.		CHS	PV	-11,491.46
10.	0	FV		0.00
11.	8	g	i	0.67
12.	5	g	n	60.00
13.		PMT		233.01
14.		RCL	1 –	35.00

(to amortize the incremental $1,000 loaned)

15.		PMT		35.02
16.	1,000	CHS	PV	-1,000.00
17.		i		2.86
18.		g	n	34.26 %

(yield on incremental $1,000 loaned)

Problem 16

	Keystrokes			Display
1.	22,000	CHS	PV	-22,000.00
2.	6	g	i	0.50
3.	10	g	n	120.00
4.		PMT		244.25
5.	9	g	i	0.75
6.		PV		-19,281.12
7.		STO	1	-19,281.12
8.	22,000	+		2,718.88

(present value loss from selling price)

9.	20,000	ENTER		20,000.00
10.		RCL	1 +	$718.88

(loss from book value)

You can also use the following approach to calculate the loss per monthly payment and the present value loss:

	Keystrokes			Display
1.	22,000	CHS	PV	-22,000.00
2.	10	g	n	120.00

3.	9	g	i	0.75
4.		PMT		278.69
5.		STO	1	278.69
6.	6	g	i	0.50
7.		PMT		244.25
8.		RCL	1 –	-34.44

(loss per monthly payment.)

9.		PMT		-34.44
10.	9	g	i	0.75
11.		PV		$2,718.88

(present value loss)

Problem 17

	Keystrokes			Display
1.	22,000	CHS	PV	-22,000.00
2.	10	g	n	120.00
3.	6	g	i	0.50
4.		PMT		244.25
5.	4	g	n	48.00
6.		FV		14,737.63
7.		CHS	PV	-14,737.63
8.	0	FV		0.00
9.	8	g	i	0.67
10.	6	g	n	72.00
11.		PMT		$258.40

The institution should receive monthly payments of $244.25 for four years and $258.40 for six years. The monthly financing concession amounts to $34.44 for four years ($278.69 - $244.25) and $20.29 for six years ($278.69 - $258.40). To discount the payments received at a sub-market rate:

	Keystrokes			Display
1.	4.44	PMT		34.44
2.	4	g	n	48.00
3.	9	g	i	0.75
4.		PV		-1,383.96
5.		STO	1	-1,383.96
6.	20.29	PMT		20.29
7.	6	g	n	72.00
8.		PV		-1,125.63

(present value at beginning of year 5)

9.		CHS	FV	1,125.63
10.	0	PMT		0.00
11.	4	g	n	48.00

12.	PV			-786.38
13.	RCL	1	+	-$2,170.34

Problem 18

Step 1 - Discount Cash Inflows:

	Keystrokes			*Display*
1.	10,000,000	FV		10,000,000.00
2.	10	g	i	0.83
3.	3	g	n	36.00
4.		PV		-7,417,397.04
5.		STO	9	-$7,417,397.04

Step 2 - Discount Cash Outflows (using the cash flow function):

	Keystrokes			*Display*
6.		f	FIN	
	(to clear the Financial registers.)			
7.	45,000	g	CFj	45,000.00
8.	12	g	Nj	12.00
9.	30,000	g	CFj	30,000.00
10.	12	g	Nj	12.00
11.	16,000	g	CFj	16,000.00
12.	12	g	Nj	12.00
13.	10	g	i	0.83
14.		f	NPV	$969,869.36

Step 3 - Determine Net Present Value of the property:

	Keystrokes		*Display*
15.	RCL	9 +	-$6,447,527.67
	(Net Present Value)		

Step 4 - Compare Net Present Value of property to outstanding balance of the loan:

	Keystrokes		*Display*
16.	7,000,000	+	$552,472.33
	(valuation allowance should be established)		

Problem 19

Step 1 - Determine cash flows:

The cash flows as previously determined in this section are $27,500/month in year one, $51,000/month in year two, and a capitalized cash flow of $6,175,000 after year two.

Step 2 - Discount cash flows:

	Keystrokes			*Display*
1.	27,500	g	CFj	27,500.00
2.	12	g	Nj	12.00
3.	51,000	g	CFj	51,000.00
4.	11	g	Nj	11.00
5.	6,175,000	ENTER		6,175,000.00
6.	51,000	+		6,226,000.00
7.		g	CFj	6,226,000.00
8.	10	g	i	0.83
9.		f	NPV	$5,897,766.58
	(Present Value)			

Step 3 - Compare Book Value to the Present Value:

	Keystrokes		*Display*
10.	6,750,000	-	-$852,233.42
	(valuation allowance should be established)		

Problem 20

Step 1 - Determine the cash flows:

	Keystrokes			*Display*
1.	1,000,000	PV		1,000,000.00
2.	25	g	n	300.00
3.	7.5	g	i	0.63
4.		PMT		-$7,389.91

Pay-off balance after 10 years:

5.	10	g	n	120.00
6.		FV		-797,175.11
7.		STO	1	-$797,175.11

Step 2 - Discount the cash flows at the current market rate:

	Keystrokes			Display
8.	0	FV		0.00
9.	9	g	i	0.75
10.		PV		583,372.14
11.		STO	2	583,372.14
12.		RCL	1 FV	-797,175.11
13.	0	PMT		0.00
14.		PV		325,197.47
15.		RCL	2 +	$908,569.61

(market value of loan portfolio)

Problem 21

Before-Taxes:

	Keystrokes			Display
1.	1,000,000	PV		1,000,000.00
2.	117,454	CHS	PMT	117,454.00
3.	20	n		20.00
4.		i		10.00%

After-Taxes:

	Keystrokes		Display
1.	117,454	ENTER	117,454.00
2.	40,000	–	77,454.00
3.	0.25	x	19,363.50
4.	117,454	–	-98,090.50
5.		PMT	-98,090.50
6.	1,000,000	PV	1,000,000.00
7.	20	n	20.00
8.		i	7.50 %

(after-tax cost of leasing)

Sale/Partial Leaseback After-Taxes:

	Keystrokes			Display
1.	27,454	ENTER		27,454.00
2.	90,000	+		117,454.00
3.		STO	1	117,454.00
4.	27,454	ENTER		27,454.00
5.	40,000	–		-12,546.00
6.	90,000	+		77,454.00
7.	0.25	x		19,363.50
8.		RCL	1 –	-98,090.50
9.		PMT		-98,090.50
10.	1,000,000	PV		1,000,000.00
11.	20	n		20.00
12.		i		7.50 %

(after-tax cost of sale-partial leaseback)