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ABSTRACT

THE RELATIVE PREDICTIVE CAPACITY OF TWO BANK
EARNINGS MEASURES: AN EMPIRICAL EVALUATION

By

Hugh A. Hoyt

A controversy exists between bankers and accountants over which
of two earnings measures should be presented as the final reported earnings
figure on a bank's income statement. Bankers favor a figure, described as
Net Operating Earnings, that excludes any provision for loan losses or any
security gains and losses. Accountants favor a figure, described as Net
Income, that includes some provision for loan losses and all security gains
and losses.

An investigation into the nature and causes of the controversy
revealed that although there would be no controversy if it were not for
the existence of the two disputed items (i.e., the provision for loan
losses and security gains and losses), it remains unresolved for reasons
unrelated to the arguments presented by both sides in support of their
treatment of the two items. The investigation disclosed that the primary
reason that the controversy remains unresolved is the belief, held by
both bankers and accountants, that investors have single-figure fixation.
According to this belief investors focus almost entirely on the final
reported earnings figure in evaluating the current and potential performance
of a firm while other financial data included in the published financial
statements are largely ignored. Granted the existence of the belief in
single-figure fixation, it was found that a secondary reason for the
controversy is a disagreement between the opposing sides as to which of
the two earnings measures is the most relevant to users of publicly

reported bank earnings.

Initial efforts to obtain empirical evidence that would aid in resolving the controversy were focused on attempts to perform a study to determine the validity of the belief in single-figure fixation. Such a study was not found to be feasible. Subsequent efforts were focused on performing a study to determine which of the two earnings measures was the more relevant. Such a study was found to be feasible once "the capacity to predict future earnings" was specified as a surrogate for relevance.

While the general purpose of the "predictive" study was to obtain empirical evidence that would aid in resolving the controversy, the specific purpose was to determine the relative capacity of the two earnings measures to predict future all-inclusive earnings. For, it was argued, if one earnings measure were found to have a predictive capacity superior to the other there would be new evidence to support the presentation of the measure with the superior predictive capacity as the final reported earnings figure on the grounds that it was more relevant. All-inclusive earnings was specified as the relevant forecast objective on the grounds that it provides the best measure of a bank's future overall performance.

Net Operating Earnings and Net Income per share were computed for each year of the twelve-year period ending in 1968 for each of 26 large commercial banks on the basis of data contained in the published annual reports of these banks. These per-share figures served as the sole input(s) to six linear forecast models which were used to obtain estimates of all-inclusive earnings per share one year in the future. The forecast models employed prior years' earnings figures for periods ranging from one to five years. The difference between forecast earnings and actual all-

inclusive earnings served as the measure of forecast error. Aggregations
of the annual forecast errors associated with each earnings measure over
forecast-error-periods ranging from one to seven years served as the
basis for determining the relative predictive capacity of the two earnings
measures.

An analysis of the results of this study disclosed that Net
Operating Earnings (the bankers' earnings measure) showed a superior
predictive capacity for forecast-error-periods of two years or less in
length whereas Net Income (the accountants' earnings measure) showed a
superior predictive capacity for forecast-error-periods of four years or
more in length with neither measure showing a superiority for the three-
year forecast-error-period. Since both earnings measures were found to
have superior predictive capacities over one or more forecast-error-
periods considered to be relevant to users of a final reported earnings
figure, neither measure could be unequivocably designated as being more
relevant than the other. Consequently it was concluded that no new
evidence was found to support the presentation of either Net Operating
Earnings or Net Income as the final reported earnings figure on a bank's
income statement.

THE RELATIVE PREDICTIVE CAPACITY OF
TWO BANK EARNINGS MEASURES:
AN EMPIRICAL EVALUATION

By

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by

Hugh **A.** **Hoyt**

1970

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

1.1   Purpose of Research

The purpose of this research is to obtain empirical evidence that will aid in resolving the controversy that exists between bankers and accountants over the form and content of bank income statements.

1.2   The Controversy

The controversy between bankers and accountants essentially involves a disagreement over which of two earnings measures should be presented as the final reported earnings figure on a bank's income statement. Bankers favor a figure, described as Net Operating Earnings, that excludes any provision for loan losses or any security gains and losses. Accountants favor a figure, described as Net Income, that includes some provision for loan losses and all security gains and losses. Bankers contend that the presentation of Net Income as a final reported earnings figure would give a distorted indication of a bank's "earning power" since such a figure includes two items (i.e., a provision for loan losses and security gains and losses) that they consider to be of a nonoperating nature. Accountants argue that security gains and losses and loan losses are a normal part of a bank's operations. Therefore, they contend that a failure to include security gains and losses and some provision for loan losses in the determination of a final reported earnings figure is misleading. Edward T. Shipley, former chairman of the Accounting Principles Committee of the American Bankers Association and past president of The

1

Association for Bank Audit, Control, and Operations (NABAC) has summarized

the controversy in the following manner:

> Among the subjects of continuing discussion in bank finan-
> cial reporting is the possible adoption of the so-called "all-
> inclusive" income statement. This concept means simply that
> the income statement should reflect all income and expense
> items, including even extraordinary, nonrecurring items; the
> alternative approach reflects the idea that the income state-
> ment should reveal current operating performance and that
> extraordinary items, unrelated to operations for the period,
> should by-pass the income statement and be directly credited
> to or charged against the capital accounts. The SEC and the
> AICPA have tended to favor the all-inclusive income statement,
> although extraordinary items are expected to be presented
> "below the line," as additions to or deductions from net
> operating income in arriving at net income. In banking, the
> debate has centered on two important items, the creation of
> a bad debt reserve and the treatment of gains or losses on
> securities transactions. There are substantial reasons why
> the generally preferred all-inclusive income statement would
> be detrimental to the best interests of banks and investors
> in bank securities.[1]

Figures 1 and 2 illustrate the income statement format advocated

by bankers and accountants, respectively.[2] The underlined captions in

the two examples represent the major areas of difference. Identical

amounts are used in both of the examples for comparable revenue and

expense items with the exception of the provision for loan losses. The

major differences in the two illustrated income statements are described

below. All references to amounts pertain to the figures listed in the

"current year" column of Figures 1 and 2.

The first difference in the two statements occurs in the treat-

ment of a provision for loan losses. Figure 2 (the accountants' state-

---

[1]Edward T. Shipley, "Bank Accounting Principles: A Progress
Report," Law and Contemporary Problems, Vol. 32: No. 1 (Winter, 1967),
p. 144.

[2]The format for Figure 1 was synthesized from an analysis of the
1968 annual reports of the fifty largest commercial banks. The format for
Figure 2 was extracted, with minor modifications, from Audits of Banks:
Supplement (Committee on Bank Accounting and Auditing of the American
Institute of CPA's, [New York: AICPA, Inc., 1969] , p. 5.).

STATEMENT OF INCOME
For the Years Ended December 31, 19__ and 19__

	Current Year	Preceding Year
Operating income:		
Interest on loans	$1,000,000	$ 900,000
Interest and dividends on:		
U.S. Government securities	180,000	200,000
State and municipal securities	60,000	60,000
Other securities	10,000	8,000
Trust Department income	100,000	90,000
Service charges on deposit accounts	50,000	45,000
Other operating income	60,000	55,000
Total	$1,460,000	$1,358,000
Operating expenses:		
Salaries	$ 220,000	$ 200,000
Other employee benefits	15,000	15,000
Interest	480,000	460,000
Net occupancy expense of bank premises	55,000	52,000
Other operating expenses	56,000	65,000
Total	$ 826,000	$ 792,000
Operating earnings before income taxes	$ 634,000	$ 566,000
Less applicable income taxes	277,000	244,000
Net operating earnings	$ 357,000	$ 322,000
Net operating earnings per share	$3.57	$3.22
Nonoperating additions and (deductions):		
Securities gains (losses), less related income tax effect of $50,000 in 19__ and $100,000 in 19__	$ 150,000	$ (100,000)
Provision for loan losses, less income tax reduction of $19,000 in 19__ and $21,000 in 19__	(19,000)	(21,000)
Other, less income tax reduction of $30,000	(28,000)	---
Total	$ 103,000	$ (121,000)
Transferred to undivided profits	$ 460,000	$ 201,000

FIGURE 1

INCOME STATEMENT FORMAT ADVOCATED BY BANKERS

STATEMENT OF INCOME
For the Years Ended December 31, 19__ and 19__

	Current Year	Preceding Year
Operating income:		
Interest on loans	$1,000,000	$ 900,000
Interest and dividends on:		
U.S. Government securities	180,000	200,000
State and municipal securities	60,000	60,000
Other securities	10,000	8,000
Trust Department income	100,000	90,000
Service charges on deposit accounts	50,000	45,000
Other operating income	60,000	55,000
Total	$1,460,000	$1,358,000
Operating expenses:		
Salaries	$ 220,000	$ 200,000
Other employee benefits	15,000	15,000
Interest	480,000	460,000
Net occupancy expense of bank premises	55,000	52,000
Provision for loan losses	15,000	15,000
Other operating expenses	56,000	65,000
Total	$ 841,000	$ 807,000
Income before income taxes and securities gains (losses)	$ 619,000	$ 551,000
Less applicable income taxes	269,000	236,000
Income before securities gains (losses)	350,000	315,000
Securities gains (losses), less related income tax effect of $50,000 in 19__ and $100,000 in 19__	150,000	(100,000)
Income before extraordinary item	500,000	215,000
(Loss) on sale of branch bank building, less related reduction in income tax of $30,000	(28,000)	---
Net income	$ 472,000	$ 215,000
Earnings data per share:		
Income before extraordinary item	$5.00	$2.15
Extraordinary item, less related reduction in income tax	(.28)	---
Net Income	$4.72	$ 2.15

FIGURE 2

INCOME STATEMENT FORMAT ADVOCATED BY ACCOUNTANTS

ment) includes a provision for loan losses of $15,000 in "Operating expenses" whereas Figure 1 (the bankers' statement) contains no such item. The $15,000 figure represents what accountants would call a "normal" provision for loan losses in that it excludes that portion of the total tax-deductible provision considered to be of a contingency nature by them. Further discussion of the concepts of a "normal" provision and a contingency portion of the total tax-deductible provision is deferred until Chapter II. The inclusion of a normal provision for loan losses, adjusted for the related income-tax effect ($15,000 - $8,000 = $7,000), accounts for the only difference between the figure reported as "Net operating earnings" ($357,000) by bankers and the figure reported as "Income before securities gains (losses)" ($350,000) by accountants.

Figure 1 does contain a provision for loan losses. However, the amount is shown as a nonoperating deduction from "Net operating earnings" and represents the total tax-deductible provision of $38,000 allowed the bank. Since the "Nonoperating additions and (deductions)" are shown net-of-tax, the amount of the provision for loan losses shown in Figure 1 is $19,000 ($38,000 - $19,000). The $12,000 difference between the provision for loan losses shown in Figure 1 ($19,000) and the net-of-tax provision deducted in Figure 2 ($7,000, as derived above) represents the contingency portion of the total tax-deductible provision. No such amount is contained anywhere in Figure 2 since the contingency portion of the total tax-deductible provision for loan losses is considered by accountants to be a segregation of retained earnings. The $12,000 difference between the two provisions for loan losses accounts for the difference between the amount reported by bankers as "Transferred to undivided profits" ($460,000) and the amount reported by accountants as "Net income" ($472,000).

The next noticeable differences in the two statements pertains to the location and identification of security gains or losses and extraordinary items. Figure 1 shows securities gains of $150,000 along with the provision for loan losses and an "other" deduction of $28,000 as "below the line" adjustments to "Net operating earnings". Figure 2 treats security gains or losses as an adjustment to "Income before securities gains (losses)" in arriving at "Income before extraordinary item". In the absence of any extraordinary item, security gains or losses would represent the final adjustment in arriving at "Net income". Figure 2 describes in greater detail what Figure 1 shows as an "other" deduction and treats it as an extraordinary item in arriving at "Net income". Incidentally, little attention has been focused on the treatment of extraordinary items in the controversy, presumably because such items do not loom large in relation to security gains and losses and the provision for loan losses.

The final difference, of course, concerns the designation of a final reported earnings figure. Figure 1 shows "Net operating earnings" both as a gross and earnings-per-share figure to illustrate the bankers' preference for it as the final reported earnings figure even though it is not the final figure on the income statement. Figure 2 shows "Net income" as the final figure on the income statement in illustrating the accountants' preference for it as the final reported earnings figure. Although Figures 1 and 2 are merely examples, they do serve to illustrate that there can be a considerable difference between the final reported earnings figures advocated by both parties involved in the controversy.

It is worth noting that although a controversy still exists over the appropriate form and content of bank income statements, significant

advances have been made in the overall financial reporting practices of

banks in the past ten years.

> Prior to the Securities Acts Amendments of 1964, not a
> great deal was done to provide bank shareholders and the
> investment community with needed information. Some larger
> banks had begun to publish income statements, but most banks
> limited their disclosure of their financial affairs to the
> dissemination of the reports of condition [i.e., balance
> sheets] required by the various supervisory authorities.
> These reports, in forms prescribed by the Comptroller of
> the Currency, the Federal Reserve Board, the Federal Deposit
> Insurance Corporation (FDIC), or state supervisory agencies,
> were largely identical in format. They were filed quarterly
> with the agencies but were typically published, as required,
> twice a year. The similarity in the statements' appearance
> belied the lack of uniformity in the accounting principles
> employed in their preparation. Statements of one bank could
> not be safely compared with those of another, and the
> prescribed forms made no provision for footnotes to explicate
> the figures and the accounting techniques followed in arriving
> at them. Statements of financial condition did not reveal
> earnings except as they might perhaps be deducible by
> comparison of surplus and undivided profit figures with the
> same accounts disclosed in earlier statements; comparative
> figures, showing changes from one statement to the next, were
> never required and seldom provided. While most supervisory
> authorities did require the filing of annual reports of
> earnings and dividends, these were unavailable to the public.[3]
> (Emphasis added.)

The Securities Acts Amendments of 1964 vested the regulatory

authority for bank financial reporting with the respective federal agency

responsible for supervising the bank generally. Thus, the Comptroller

of the Currency became responsible for national banks, the Federal

Reserve Board for state member banks, and the FDIC for insured state

nonmember banks.

Subsequently the Federal Reserve joined forces with the FDIC to

produce substantially identical regulations in 1965.[4] The Federal

---

[3]Shipley, p. 132.

[4]Code of Federal Regulations: Title 12 - Banks and Banking,
sections 206.1-.71 (January 1, 1970 revision).

Reserve's is the version most often referred to and is identified as

Regulation F. The Comptroller of the Currency did not issue comparable

regulations until 1967.[5] Among other things, these regulations stipulated

that banks begin providing their stockholders with annual financial

statements which included an income statement and disclosed amounts

relating to security gains and losses and the provision for loan losses.

The income statement illustrated in Figure 1 is indicative of the effect

that these new reporting requirements had on the published income state-

ments of most large, publicly-held banks by the end of 1968.

Thus, no longer is the argument between bankers and accountants

so much over disclosure as it is over format and terminology. Both sides

are willing to include the total amount of security gains and losses and

some provision for loan losses in the income statement; they disagree as

to the location of these items in the income statement and the designation

of a final reported earnings figure.

1.3   Importance of the Controversy

Two types of evidence are presented to indicate the importance of

the controversy: (1) the size of the items involved in the controversy

and (2) the publicity generated by the controversy.

Table I contains data relating to Net Operating Earnings, security

gains and losses, the provision for loan losses, and actual loan losses of

Federal Reserve member banks for the twelve-year period from 1957-68. The

data reveal that security gains and losses and/or the provision for loan

losses have been material in relation to Net Operating Earnings individually

or collectively for each of the twelve years. Expressed as a percentage

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[5]Ibid., sections 10.1-.4 and 18.7-.7.

TABLE I

SELECTED DATA ON FEDERAL RESERVE MEMBER BANKS, 1957-68*

(Dollar amounts in millions)

(All figures before Federal Income Taxes)

	1968	1967	1966	1965	1964	1963	1962	1961	1960	1959	1958	1957
Net Operating Earnings	$5,061	$4,353	$4,130	$3,635	$3,491	$3,239	$3,112	$3,143	$3,273	$2,935	$2,510	$2,549
Security Losses (Gains)	$ 448	$ 33	$ 416	$ 20	$ 62	$ (81)	$(152)	$(351)	$ (72)	$ 792	$(535)	$ 211
Percent of Operating Earnings	8.9%	.8%	10.1%	.5%	1.8%	2.5%	4.9%	11.2%	2.2%	27.0%	21.3%	8.3%
Provision for Loan Losses												
Charge-offs, Net of Recoveries	$ 323	$ 357	$ 332	$ 255	$ 187	$ 197	$ 132	$ 157	$ 179	$ 37	$ 47	$ 59
Net Increase in Reserve	397	341	261	405	315	200	275	224	148	184	153	187
Total	$ 720	$ 698	$ 593	$ 660	$ 502	$ 397	$ 407	$ 381	$ 327	$ 221	$ 200	$ 246
Percent of Operating Earnings	14.2%	16.0%	14.3%	18.2%	14.4%	12.3%	13.1%	12.1%	10.0%	7.5%	8.0%	9.6%
Actual Net Loan Losses	$ 323	$ 357	$ 332	$ 255	$ 187	$ 197	$ 132	$ 157	$ 179	$ 37	$ 47	$ 59
Percent of Operating Earnings	6.4%	8.2%	8.0%	7.0%	5.4%	6.1%	4.2%	5.0%	5.5%	1.3%	1.9%	2.3%
Net Decrease (Increase) in Net Operating Earnings Due to Security Losses (Gains) and the Provision for Loan Losses	$1,168	$ 731	$1,009	$ 680	$ 564	$ 316	$ 255	$ 30	$ 255	$1,013	$(335)	$ 457
Percent of Operating Earnings	23.1%	16.8%	24.4%	18.7%	16.2%	9.8%	8.2%	.9%	7.8%	34.5%	13.3%	17.9%

Source of data: "Member Bank Income, 1968", Federal Reserve Bulletin, May, 1969, p. 421.

of Net Operating Earnings, the combined items ranged from a low of .9%

to a high of 34.5% with a mean percentage of 16.0. Individually, security

gains and losses ranged from .5% to 27.0% with a mean percentage of 8.3;

the provision for loan losses ranged from 7.5% to 18.2% with a mean

percentage of 12.5.

That the controversy has received public attention is shown by

the following quotations taken from media with a national audience. The

January 8, 1969, Wall Street Journal carried the following front page

caption:

<div style="text-align:center">

Frustrated CPA's
Accounting Body Fails
In Attempt to Change
Some Firms' Reporting

- - - -

Three Proposals Withdrawn
Or Weakened Could Have
Reduced '68 Profit Figures

- - - -

A Dare From Banking Group

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The text of the article included the following statements:

It [the American Institute of Certified Public Accountants]
has delayed making a final ruling that banks' reported profits
should reflect losses on uncollectible loans and gains and losses
on sales of securities; it is now negotiating a compromise with
the American Bankers Association.

. . . .

The American Bankers Association went beyond criticizing the
AICPA ruling that banks should reflect bad-loan losses and
securities profits or losses in a figure clearly labeled as
net profit. In effect, it dared the AICPA to make the ruling
stick. (Emphasis added.)
Banks now report figures on bad-debt losses and on
securities gains and losses but not as part of a figure labeled
net profit; the only figure labeled profit on most reports is
operating profit from interest on loans and investments and
from fees for banking service. The ABA said that regulatory
agencies permit banks to report this way and advised member
banks to continue doing so "even though such action could
result in qualified opinions from CPA's (that is, opinions
containing exceptions to profit figures on the grounds that
the AICPA ruling wasn't followed).

The New York Times referred to the controversy in the following manner:

> [L]ast week the accounting profession - through its senior
> rule-making body, the Accounting Principles Board - called on
> bankers to stop overstating their profits and start issuing
> their annual reports in accordance with "generally accepted
> accounting principles".
> But whether the accountants' demand, which was part of a
> long-term drive to bring bank reporting in line with that of
> other industries, will do much to resolve the muddle over
> bank accounting is still an open question. (Emphasis added.)
> The fact is that accountants themselves - let alone bankers
> and bank regulatory agencies - are far from agreed as to what
> these "generally accepted principles" ought to be in certain
> key areas.[6]

Even Time magazine devoted some attention to the dispute:

> After a protracted wrangle with bankers, the board
> [Accounting Principles Board] last month demanded that banks
> include in their reported profits the losses on collectible
> loans as well as the gains or losses on securities transactions.[7]

Even though great strides have been taken to improve bank financial reporting practices in the past few years, the above disclosure of the amounts involved in and the attention given to the controversy indicates that there is a need to find a way to resolve the dispute. The aforementioned Mr. Shipley suggested the need for continued research efforts in order to resolve the controversy in his progress report on bank accounting principles.

> Regulation F did not purport to resolve the debate over the
> proper function of the income statement. It compromised on the
> question of presentation, showing first "net operating earnings"
> and ultimately, after "nonoperating" items, a figure labelled
> "transferred to undivided profits"; no "net income" figure is
> shown. More important, Regulation F does not satisfactorily
> resolve the problems raised by bad debt reserves and securities
> transactions, assigning both to "below the line" status even
> though each may have elements of current expense or income.

---

[6]H. Erich Heinemann, "Banks and Profits: Whether Accountants' Plea Will Help Resolve Reporting Muddle is Uncertain," New York Times, March 10, 1969, p. 63.

[7]"Cooking the Books to Fatten Profits," Time, April 11, 1969, p. 96.

Both issues are thus intertwined with the functional concept
of the income statement.[8]

He concludes that Regulation F represents a step toward industry-wide

accounting uniformity but that:

> A considerable controversy continues as the AICPA seeks to
> establish its "generally accepted accounting principles for
> banks" in certain areas where the accountants' approach
> differs from the philosophy of a large group of the major
> banks throughout the country. It would appear, therefore,
> that the immediate objective is to obtain uniform and
> comparable reporting on the part of all banks and subsequently
> to reconcile such reporting practices with the proposals of
> the financial analysts and the CPAs. Admittedly this will
> require time, but, with the increasing study currently being
> devoted to the subject, we can look for continuing progress
> in this direction.[9]

1.4 Current Status of the Controversy

Although the disagreement between bankers and accountants over

income reporting requirements has existed for over a decade, the dispute

did not begin to reach its current proportions until the AICPA issued

Accounting Principles Board Opinion No. 9 on Reporting the Results of

Operations in December, 1966.[10] In essence, this opinion, had it been

applicable to banks, would have required banks whose financial statements

were audited by CPA's to include gains or losses on sales of securities

and some provision for loan losses in the determination of a final

reported earnings figure to be identified on the income statement as Net

Income. Failure to follow this procedure would have resulted in the

expression of a qualified opinion in the auditor's report.

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[8]Shipley, pp. 144-145.

[9]Ibid, p. 148.

[10]Accounting Principles Board of the American Institute of Certified
Public Accountants, Opinions of the Accounting Principles Board - No. 9:
Reporting the Results of Operations (New York: AICPA, Inc., 1967). Here-
after referred to as APB 9.

13

However, because of the disagreement between bankers and account-
ants, the applicability of APB 9 to banks was deferred pending further
study and recommendation by a committee of the AICPA.[11] After two years
of study and discussions with representatives of the commercial banking
industry the AICPA issued, in March, 1969, Accounting Principles Board
Opinion No. 13[12] which specifically brought commercial banks under the
requirements of APB 9.

It was the proposed and ultimate issuance of APB 13 which prompted
the reactions disclosed in the quotations presented in section 1.3 above.
The threat by bankers to ignore APB 13, as alluded to in those quotations
was not an idle one. Until July 8, 1969, there was no indication that
the vast majority of banks would be affected by APB 13. First, large,
publicly-held banks, unlike their corporate industrial counterparts, are
not legally required to have their financial statements audited by CPA's.
Until 1964 banks were excluded from the Securities Acts of 1933 and 1934.
The Securities Acts Amendments of 1964 extended the prior acts to cover
large, publicly-held banks. However, instead of placing these banks under
the jurisdiction of the Securities and Exchange Commission, which requires
audited financial statements, the amendment left them responsible to their
designated regulatory authority. At the present time, neither the Federal
Reserve, Federal Deposit Insurance Corporation, nor the Comptroller of
the Currency require CPA audited financial statements.

Second, since most large publicly-held bank stocks are traded
over-the-counter, there is no influential body, such as the New York Stock

[11]Ibid., p. 108.

[12]Accounting Principles Board of the American Institute of Certi-
fied Public Accountants, Opinions of the Accounting Principles Board -
No. 13: Amending Paragraph 6 of APB Opinion No. 9, Application to Commer-
cial Banks (New York: AICPA, Inc., 1969). Hereafter referred to as APB 13.

Exchange, which might be concerned if these banks (1) did not have their
financial statements audited by CPA's or (2) received qualified opinions
from CPA's for failure to adhere to APB 13.[13]

However, at a meeting on July 8, 1969, representatives of the
AICPA, the American Bankers Association, the three Federal banking
regulatory authorities and the SEC reached an understanding as to
acceptable standards of reporting for commercial banks. This agreement
essentially embodied the tenets of APB 13. In accordance with instruc-
tions issued by the three bank regulatory agencies subsequent to this
meeting banks began reporting Net Income in their 1969 annual report.

Thus, a reporting impasse between bankers and accountants was
averted. The agreement can be praised for primarily one reason --
uniformity; bank financial statements are now more comparable with those
of other industries. However laudible this improvement may be from the
standpoint of uniformity, it should not be interpreted as meaning that
the controversy has been resolved. Past compromises in the interest of
uniformity have not always proved successful in resolving controversies
dealing with accounting matters. The investment credit controversy
provides the most notable example. Prior to the issuance of APB 2,
accountants were unable to reach agreement as to what accounting treat-
ment should be accorded the investment credit. After much debate, APB 2
was issued in the interest of achieving uniformity. However, it did not
resolve the controversy. The issuance of APB 4 attests to that fact.
Indeed, the controversy remains unresolved.

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[13]Four bank stocks were listed on the New York Stock Exchange as
of July 31, 1969.

The investment credit controversy still exists because the disputants have been unable to find a common theoretical or empirical basis on which to evaluate the various proposed accounting treatments. Perhaps no common ground exists. Yet this has not precluded the need for research efforts to discover such a basis.

A similar case can be made for the bank income reporting controversy. For nearly two-and-one-half years (considerably longer if one considers the fact that most large banks have been reporting Net Operating Earnings for over fifteen years) bankers and accountants stood firm in their respective positions. Then, on July 8, 1969 the banking regulatory agencies abandoned their previous position and sided with the accountants. Since no new arguments had been presented and no new empirical evidence uncovered, this change in position must be attributed to a desire for more uniform financial statements on the part of the regulatory agencies. However, since no new evidence was presented in reaching the compromise it is debatable as to whether the arguments will abate and the controversy die or pressure be brought by dissident bankers to have the reporting regulations changed. In fact, recent statements in the financial press indicate that some bankers remain dissatisfied with the new reporting format.[14] Thus, there is still need for research to determine if a common basis can be found upon which the opposing positions can be judged and the controversy resolved.

1.5 Scope and Methodology

Since the purpose of this research is to obtain empirical evidence

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[14]See, for example, the January 16, 1970 (p. 23) and April 15, 1970 (p. 1) issues of The Wall Street Journal.

that will aid in resolving the controversy, the scope of this dissertation is limited primarily to an analysis of past earnings data of several large banks. More specifically, the earnings data that is analyzed consists of Net Operating Earnings and some measure of Net Income - i.e., Net Operating Earnings adjusted for security gains and losses and some provision for loan losses.

A review and discussion of the theoretical arguments surrounding the accounting treatment of security gains and losses and the provision for loan losses is presented in Chapter II. The purpose of such discussion is twofold. First, some review of the items involved in the controversy is necessary before any additional analysis can be undertaken. Second, the discussion serves to point out that logical arguments exist supporting the positions taken by both bankers and accountants. Presumably, this is why the controversy exists. Therefore, there is a need to develop some other basis for settling the dispute since logical reasoning has failed to provide a solution to the controversy. Chapter III is devoted to the development of just such a basis. More specifically, it (1) contains an analysis of the basic reasons for the controversy and (2) lays the foundation for the development of an empirical study the results of which could provide evidence that will aid in resolving the controversy. The methodology used to operationalize the empirical study developed in Chapter III is presented in Chapter IV. Chapter V contains the empirical findings while Chapter VI discusses the limitations and presents the conclusions and implications of the study.

CHAPTER II

THE ITEMS INVOLVED IN THE CONTROVERSY

2.1   Introduction

Previous discussion has already pointed out that the principal

items around which the controversy centers are security gains and losses

and the provision for loan losses. Without these items there would be no

controversy since there would be little or no difference between the

amount of the final reported earnings figure advocated by bankers and

the figure supported by accountants.

This chapter presents the arguments advanced by bankers and

accountants in support of their positions for or against including

security gains and losses and some provision for loan losses in a final

reported earnings figure. As indicated in Chapter I, the purpose of

such a presentation is (1) to provide background information about the

controversy and (2) to show that there is a need to develop a new basis

for evaluating the positions taken by the two opposing sides to the

controversy.

2.2   Security Gains and Losses[1]

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[1]The following sources were consulted extensively in synthesizing
the arguments presented in this section: The Accounting Commission, NABAC
Accounting Bulletin No. 1, Revised -- Securities Accounting (NABAC, The
Association for Bank Audit, Control and Operation, 1967). Walter C.
Johnson, "Financial Reporting To Stockholders By Commercial Banks" (unpub-
lished Master's Thesis, Stonier Graduate School of Banking, Rutgers -- The
State University), pp. 43-74. Shipley, pp. 146-147.

2.2.1   The Bankers' Position

Bankers contend that security gains and losses (SG&L) should be treated as nonoperating items and excluded from the determination of any measure of current earnings for the following reasons.

1)   SG&L do not result from activities that are a normal part of bank operations because the magnitude of the amounts and the timing of the transactions are often influenced by other than usual operating trans- actions.   This argument stems from the preferential tax treatment accorded banks regarding the treatment of SG&L.   Banks are allowed to claim the capital gains rate on profits on securities held longer than six months. They are also permitted to deduct losses on securities sold at ordinary tax rates.   However, the tax rate applicable in any given year depends upon whether there is a net gain or net loss after gains and losses have been offset against each other.   The capital gains rate is applied if there is a net gain, the ordinary rate if there is a net loss.   Consequently, prudent financial management requires that, in order to obtain the maximum tax benefit, banks must avoid taking security gains and losses in the same year and must strive to concentrate losses in one tax year and gains in another.

Bankers point out that such tax-inspired transactions produce wide fluctuations in SG&L from one year to the next.   These wide fluctuations, they argue, are not reflective of the normal operations of a bank.

2)   Because of the wide fluctuations in SG&L from one year to the next, the inclusion of SG&L in the determination of current year earnings would distort any comparison of year to year earnings figures and could have two deleterious effects.   First, it could lead to serious misinter- pretation by users of the reported earnings figure who do not understand

the nature of SG&L. Second, it could lead "statement conscious"
managements to comingle gains and losses in a given year to offset the
wide fluctuations presently existing. Such a management decision would
lose for the bank and for the shareholders the benefits available under
the tax laws and would be to their joint detriment.

3) The bulk of SG&L for any one year represents an adjustment
of prior years' earnings and therefore should not be included in the
determination of current earnings. Since the great majority of the
securities in a bank's portfolio are held for periods in excess of one
year, bankers argue that it is not proper to include in the earnings of
the year of disposition a gain or loss that is partly attributable to
one or more prior years. They argue further that the entire amount
of a given year's SG&L should be excluded from current earnings since
no acceptable method has been developed for apportioning SG&L to either
prior to future periods.

4) Current disclosure requirements, when coupled with the above
arguments, provide the financial statement users with sufficient informa-
tion to determine the impact of SG&L on the current and future operations
of the bank.

> Past practice in banks' treatment of security gains and
> losses has included the carrying of the results of such
> transactions directly to the undivided profits account or
> to reserves specifically provided for this purpose. If the
> annual reports did not include a reconciliation of such
> reserves or of the undivided profits account, the investor
> or analyst would have no opportunity to ascertain the impact
> of such transaction on the equity portion of the balance
> sheet. Under the provisions of Regulation F and of the
> Comptroller's new regulation, however, the results of such
> transactions must be shown as a "below-the-line" item. In
> addition, Regulation F and the Comptroller's regulations
> each require a reconciliation of the undivided profits
> account and all reserves, thereby providing further dis-

closure as to the accumulated results of the investment trans-
actions.[2]

2.2.2   The Accountants' Position

Accountants argue that SG&L should be included in the determina-
tion of a final reported earnings figure for the following reasons.

1)   SG&L do result from activities that are a normal part of
bank operations. This conclusion is derived from the following arguments.
Banks maintain security portfolios in order to earn a return on funds
that must be maintained in a liquid state to meet any sudden deposit
withdrawals. Gains or losses on dispositions of securities result for
one of two reasons. First, a gain or loss may be incurred because the
securities portfolio was reduced to meet a deposit run off. Second,
securities could be disposed of in an effort to improve the long-term
earnings of the bank by such activities as (1) realigning the portfolio
in order to obtain an improved long-term yield, or (2) granting loans at
higher yields, or (3) reducing interest costs on borrowed funds. The
size of a given period's gain or loss is indicative of (1) management's
ability to forecast fluctuations in demand deposits and (2) the degree
of risk management is willing to accept in its efforts to obtain invest-
ment income. Management could minimize security losses by purchasing
short-term, low-yield treasury bills. Changes in interest rates would
have little or no affect on the market price of these shortly maturing
securities. With the exception of dispositions incurred to meet sudden
deposit withdrawal demands, losses could also be minimized by holding all
securities to maturity.

The consistent incurrence of large gains and losses over past

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[2]Shipley, p. 147.

years and the continued inclusion of long-term, high yield securities in banks' security portfolios indicates that SG&L are a part of a bank's normal and expected operating pattern. Therefore, it is illogical to include the income resulting from a management decision to use the funds provided by the disposition of securities in current earnings and at the same time exclude the results of the securities transactions that made the funds available.

2) The true measure of performance of a security is its yield. Yield is determined by the difference between the purchase price and the selling price of a security plus any interest received during the holding period. Therefore, it is inconsistent to include interest, premium amortization, and discount accretion in current earnings but to exclude SG&L.

3) Excluding SG&L from the determination of a final reported earnings figure allows banks to manipulate current earnings and prevents comparison with other banks. The following two examples illustrate the basis for this argument.

Example 1. Assume that a bank holds $1,000,000 of 3% treasury notes at par maturing in five years and that the current yield on treasury notes maturing in five years is 7%. Annual interest income on these notes would amount to $30,000 per year. Discounting the currently held treasury notes at 7% indicates that they should have a current market price of approximately $836,000. By selling the notes the bank would realize an after-tax loss of $82,000 assuming an ordinary tax rate of 50%. This loss, of course, would be excluded from current earnings. By reinvesting the after-tax proceeds of $918,000 ($836,000 plus $82,000 tax reduction) in new five-year 7% treasury notes the bank will receive $64,260 (.07 x

$918,000) in interest income before taxes each year to maturity. The net effect of this transaction is that net operating earnings before taxes would be increased $34,260 (from $30,000 to $64,260). Yet the actual earnings performance of the bank would not have changed materially. A loss would have been realized currently in order to increase future earnings. It seems clear that if this loss is never reflected in income, the reported earnings of this bank would be overstated.

Example 2. Assume that a bank holds a $1,000,000 3% bond at par maturing in five years and that its current market value is $900,000. By selling the bond the bank would realize a loss of $100,000 which would be excluded from current earnings. The proceeds could then be reinvested in a different $1,000,000 3% bond for approximately $900,000. If the discount of $100,000 is accrued over the remaining life of the bond, the net effect would be to increase net operating earnings by $100,000. A stockholder would be no better off as a result of this transaction and, yet, he would be lead to believe that the earnings performance of the bank was improving. (For purposes of simplicity, income taxes were ignored in this example.)

2.2.3   Proposed Alternative Accounting Treatment

Some bankers and accountants have proposed an alternative method of accounting for the bulk of SG&L. Basically, this method involves the deferral and subsequent amortization of SG&L resulting from portfolio realignment (as distinguished from gains or losses resulting from sales of securities to obtain proceeds to meet new loan demands or deposit withdrawals). Under this method the amortized amounts would be included in the determination of current earnings as an adjustment of interest income from securities.

Proponents of this method view the sale and subsequent reinvest-

ment in similar grade securities as constituting no substantive change

in the investment portfolio. They argue that amortizing the gain or

loss to the maturity date of the security sold results in the inclusion

of gains and losses in the fiscal period to which they relate.

> They [the proponents of deferral and amortization] point out
> that the same decline or rise in prevailing interest rates
> which results in a gain or loss also results in a commensu-
> rately lower or higher interest earnings (that is, coupon
> rate adjusted for premium or discount amortization) on the
> security purchased with the proceeds of sale during the
> period from the date of sale to the maturity date of the
> security sold. Accordingly, they maintain that the deferral
> and amortization of gains and losses to the maturity dates
> of the securities sold result in the fairest presentation
> of investment earnings.[3]

Advocates of the deferral method also argue that deferral and

subsequent amortization would eliminate the deficiencies illustrated in

the two examples presented in Section 2.2.2 above.

Opponents of the deferral-and-amortization method maintain that

a sale constitutes a completed transaction and therefore no part of the

gain or loss should be attributed to subsequent securities purchased or

subsequent years' operating earnings. "They point out further the lack

of precedent for such treatment, either in practice in other industries

or in authoritative literature."[4]

> They also question the desirability of adopting a practice that
> tends to delay the reflection in interest earnings of changes
> in prevailing interest rates when, at the same time, such
> changes are reflected relatively currently in the interest
> rates banks pay for interest deposits and borrowed funds.[5]

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[3]Committee on Bank Accounting and Auditing of the American Institute
of CPAs, Audits of Banks, (New York: AICPA, Inc., 1968), p. 38.

[4]Ibid, p. 39.

[5]Ibid, p. 39.

Those opposing the deferral method also argue that application
might not be consistent, either by a given bank over a period of time or
across several banks for a given period, because of the inability to
objectively define activities related to portfolio realignment and those
related to the demand for more liquid funds.

The Committee on Bank Accounting and Auditing of the AICPA is the
principal authoritative source which supports the use of the deferral-and-
amortization method. The Committee, however, recognizes the acceptability
of both the completed-transaction (conventional) and the deferral methods.[6]
The Accounting Commission of the Association of Bank Audit, Control and
Operation (NABAC), although it has published a summary of the arguments
supporting both the completed-transaction and the deferral-and-amortiza-
tion methods, has indicated that it does not "endorse, oppose, or comment
on the validity of the arguments presented."[7] The principal source of
opposition to the deferral-and-amortization method comes from the three
federal regulatory agencies who have taken the position that the deferral
concept does not conform with current regulations.[8] As a consequence,
the deferral method has been adopted by only a few banks for use in
determining SG&L in their published financial statements and has not been
a significant factor in the controversy.

2.3   The Provision for Loan Losses[9]

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[6]Committee on Bank Accounting. . ., Audits of Banks: Supplement, p. 1.

[7]The Accounting Commission, p. 8.

[8]Committee on Bank Accounting. . ., Audits of Banks: Supplement, p. 1.

[9]The following source was consulted extensively in developing the
material presented in this section: Ray H. Garrison,"Accounting for Bad
Debt Reserves in Commercial Banks" (unpublished Ph.D. dissertation,
Graduate School of Business, Indiana University, 1966).

operating earnings".[12] One researcher has suggested that the purpose of this requirement was "(1) to eliminate the distorting effect of depression losses from the results of normal operating activities, and (2) to note clearly the portion of current earnings being set aside as protective reserves."[13]

Little public attention was focused on bank earnings until many large banks began publishing detailed financial statements, including an income statement, in the middle 1950's. By this time, of course, loan losses and SG&L had had ample time to return to normal levels. However, instead of returning to pre-depression income determination methods, these banks reported "net current operating earnings" as the measure of current earnings.

By this time two new reasons for reporting "net current operating earnings" had emerged. First, the federal regulatory agencies continued to require the annual Report of Income and Dividends to be filed in essentially the same format as established in 1933.[14] Although banks were free to choose a different reporting format for published reports for their own circulation, they chose to emulate the federal agency reports.

The second, and by far the most important, reason can be attributed to the issuance and subsequent revision by the Treasury Department of an arbitrary formula for the determination of the annual PFLL deductible for tax purposes. The first formula was introduced by the Internal Revenue

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[12]Garrison, p. 151.

[13]Ibid.

[14]Ibid.

Service in 1947 in the form of Mimeograph 6209.[15]   According to Mimeo-

graph 6209, a commercial bank was allowed to accumulate loan loss reserves

equal to three times its average percentage loan loss experience over

the preceding twenty-year period, on a moving average basis. This formula

was modified in 1954 to allow banks to use any twenty-year period after

1927 as a basis for establishing its loan experience.[16]

Adoption of the Internal Revenue Service formula allowed many

banks to accumulate substantial loan loss reserves. However, some banks

were able to accumulate only small reserves because they had incurred

only minor loan losses during the twenty-year experience period. In

essence, the formula discriminated against banks with a good loan loss

record in favor of those with a poor record; since, the greater a bank's

historical loan loss experience, the greater was the size of the reserve

allowable under the formula.

As a result of this discrimination, the formula prescribed in

Mimeograph 6209 was replaced with a new formula contained in Revenue

Ruling 65-92 issued by the Internal Revenue Service on March 15, 1965.[17]

This new formula, which remains in effect today, allows a bank to accumu-

late a loan loss reserve equal to 2.4% of outstanding loans at the end of

the year. The reserve can be built up over a ten-year period resulting in

an allocation each year that may substantially exceed the actual or average

loss experience of a given bank since the 2.4% bears no relationship to

an individual bank's current or past loan loss experience. The 2.4% figure

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[15]Mimeograph 6209 (reproduced in full in Garrison, pp. 214-216.)

[16]Revenue Ruling 54-148 (reproduced in full in Garrison, pp. 217-218.)

[17]Revenue Ruling 65-92 (reproduced in full in Garrison, pp. 221-225.)

does have some historical significance in that it is "equal to three times the average percentage loss experience of all operating commercial banks over the twenty-year period 1928-1947."[18]

Bankers were, and continue to be, reluctant to include the total tax-deductible PFLL in the determination of current earnings because of the distortive effects it could have on current earnings. This distortion is due to the following factors. First, since the 2.4% reserve-to-loan ratio bears no relationship to an individual bank's experience, amounts deductible under the formula can be extremely large -- "equalling 50% or more of before-tax income in many cases."[19] Second, amounts deducted under the formula tend to vary widely from year to year. This variation is caused by two factors. The first is an option in the IRS regulations that allows bankers to pass up deductions in one year and make up the deficiency in a subsequent year.[20] This option "permitted a bank to alter its bad debt deduction according to the current year's taxable income, and even omit a deduction entirely if a loss year was sustained. However, in a subsequent year when earnings were more favorable a massive deduction could be taken, if needed, to reduce the taxable earnings to the desired level."[21] The second factor was the requirement that once a bank reached its reserve ceiling, no further deductions were allowable until the reserve-to-loan ratio dropped below 2.4%.[22] This requirement, coupled with the requirement that, if adopted, the formula had to be used for

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[18]Garrison, p. 5.

[19]Ibid, p. 153.

[20]Ibid, p. 44.

[21]Ibid.

[22]Ibid.

both book and tax purposes,[23] meant that in some years there was no PFLL to report in the financial statements.

Therefore, bankers concluded that treatment of the total tax-deductible PFLL as an operating expense would produce artificial and, perhaps, unfavorable trends in current earnings. To them, the format suggested by the federal regulatory authorities' Report of Income and Dividends provided the most suitable means of eliminating these distortive effects.

Accountants have generally agreed with bankers, albeit for different reasons, that it is improper to include the total tax-deductible PFLL in the determination of current earnings, unless it happens to equal a normal PFLL. Accountants base their arguments for excluding a portion of the total tax-deductible PFLL from current earnings on the following grounds. Over the long-run, the total tax deductible PFLL contains both a valuation element and a contingency element. The valuation element is designed to allow banks to build a reserve to absorb loan losses that can be expected to be incurred as a result of normal lending activities. The contingency element is designed to allow banks to accumulate a reserve to absorb loan losses which occur at infrequent, irregular, and unpredictable intervals such as during a depression or severe recession. Accountants contend that only the valuation element should be included in the determination of current earnings while the contingency element should be excluded since it represents nothing more than a segregation of retained earnings.

The basis of their contention that a portion of the total tax-deductible PFLL contains a contingency element stems from the preferential

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[23]Ibid. 45.

tax treatment granted banks in recognition of the important social

welfare role played by them. The essence of this social welfare function

is embodied in the following statement included in a staff paper prepared

by the American Bankers Association and submitted to the Assistant

Secretary of the Treasury in regard to the revision of Treasury guide-

lines for bad debt reserves.

> Although the specific function of a bad debt reserve is to
> absorb losses on loans, the public policy implications of the
> existence of such reserves are extremely important. Commercial
> banks occupy a central place in the economy as providers of
> credit for business and individuals. When adequate provision
> has been made to absorb loan losses, banks are in a better
> position to continue to make the kinds of loans which are
> essential to the economic growth and well-being of their
> respective communities, even during periods of economic
> adversity. Thus, in a broad sense, the function of bad debt
> reserves should be viewed as that of enabling the commercial
> banking system, under varying economic conditions, to play
> its full role in sustaining the nation's economic growth.[24]

Accountants contend that proof of the recognition of the social

welfare role played by banks is inherent in the fact that the Treasury

Department allows banks to accumulate a ratio of reserve-for-loan-losses

to loans that is three times greater than the average ratio over a twenty-

year period that included the worst years in the history of banking.

The following discussion by the former chairman of the Accounting

Principles Committee of the American Bankers Association illustrates why

bankers have not been willing to segregate a normal portion of the tax-

deductible PFLL and treat it as a determinant of current earnings.

> While there can be no quarrel with the theory that some
> charge for possible losses in the loan account should be made

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[24]The American Bankers Association, Commercial Bank Bad Debt
Reserves: A Re-examination and Appraisal of Treasury Guidelines, A staff
paper submitted to the Assistant Secretary of the Treasury (Washington,
D.C., 1964), p. 7, quoted in Johnson, pp. 84-85.

against current operating earnings, there have not, at the
present time, been established any criteria for the determina-
tion of the proper amount of this charge. Suggestions have
been made that the charge to current operating earnings should
represent the average loss experience for a five-year period,
a ten-year period, or a twenty-year period. Those advocating
the five-year period make the point that only by using the most
recent data will the content of the loan portfolio approximate
the same type of loans as those existing during the current
accounting period; thus, the loss ratio encountered during the
most recent time interval is that most likely to continue with
each successive accounting period. On the other hand, those
advocating the longer time interval point out that a five-year
span is too short a time to include the effect of the extremes
of the economic cycle. In the case of catastrophic losses,
such as those resulting from the recent vegetable oil scandal
or those of banks participating in a recent substantial credit
transaction with a large national industrial company, the five-
year average can be substantially distorted. In the case of
the loans to the industrial company referred to, recovery was
obtained within a five-year period, which would have the effect
of minimizing the charge against current operating earnings in
those years following the recovery after the charge-off was
excluded from the average. It would even be possible under
such circumstances for the five-year average to result in a
net credit, which on its face would be ridiculous. For one
bank affected by this particular loan, the five-year average
ranged from .08 per cent to .0024 as the effect of the recovery
was realized.

Another approach advocated by some has been that a determina-
tion should be made by management at the end of each accounting
period of those loans which represent potential losses and that a
charge should be made against current operating earnings in such
an amount. Opposing this, of course, is the weight of authority
that financial statements should be based upon objective
accounting and not upon subjective interpretation. As is
pointed out in the AICPA's Accounting Research Bulletin No. 43,
"an important objective of income presentation should be the
avoidance of any practice that leads to income equalization."
Certainly, a subjective determination of potential loan losses
could easily lead to income equalization.[25]

2.3.2   The Accountants' Position

Accountants base their contention that some PFLL should be included
in the determination of current earnings on the following arguments.

[25]Shipley, p. 145.

First, they point out that the interest rate charged a loaning customer is determined by four factors: namely (1) the cost of money, (2) the cost of servicing, (3) an allowance for losses and, (4) a reasonable profit. Therefore, they contend, it is inconsistent to include interest from loans in current earnings and to exclude some provision for loan losses.

Furthermore, they argue that failure to include a normal PFLL in current earnings could result in misleading conclusions being drawn when comparing the performance of different banks. The interest charged a loan customer reflects the degree of risk associated with collecting the loan - i.e., the greater the risk, the higher the interest rate. The higher interest rate is necessary to provide income to offset subsequent loan losses that would be greater than those incurred with loans of a lesser risk. Given two banks with an equal amount of loans outstanding, the bank with a portfolio of high risk loans will have higher interest income than the bank that lends only to low risk customers. The "high risk" bank is also likely to have larger loan losses over time than the "low risk" bank. Under the reporting practice advocated by bankers, the "high risk" bank will show higher current earnings, ceteris paribus, than the "low risk" bank even though their overall long-run all-inclusive earnings may be identical.

Accountants contend that a normal PFLL should be based on (1) past loss experience, adjusted for such factors as known changes in the character of the loan portfolio, (2) management credit policies, and (3) economic conditions.[26] They argue that, despite the element of subjectivity involved, bank management is in the best position to weigh each of

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[26]Committee on Bank Accounting. . ., Audits of Banks, p. 47.

these three factors in determining a PFLL that will "result in systematic loan loss charges to operating earnings on a consistent basis.[27]

2.4 Summary and Conclusion

The preceding sections present the reasoning used by bankers and accountants in support of their respective positions on the treatment of SG&L and a PFLL. The arguments presented in those sections can be summarized briefly as follows. Bankers favor excluding SG&L and PFLL from a final reported earnings figure on the grounds that they are not a normal part of bank operations because of their artificial and widely fluctuating nature. Accountants argue that SG&L and loan losses are incurred as a part of normal bank operations. Therefore, they contend that SG&L and some PFLL should be included in the determination of the final reported earnings figure.

An analysis of the arguments presented by both sides indicates that there is logical support for each position. Presumably, this is why the opposing groups have been unable to reach agreement as to the proper treatment of each of the items. As is the case with so many issues in accounting today, resolution as to which treatment is "better" on theoretical grounds has become impossible because it is useless to argue which is the "more logical".[28] Therefore, there is a need to search for and obtain other means of evaluating the alternatives. The results of such a search are presented in the following chapter.

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[27]Ibid.

[28]Consider, for example, the following issues: (1) all-inclusive vs. current operating concept, (2) treatment of investment credits, (3) purchase vs. pooling, and (4) historical vs. current costs.

CHAPTER III

FORMULATION OF AN EMPIRICAL STUDY
DESIGNED TO AID IN RESOLVING THE CONTROVERSY

3.1   Introduction

The purpose of this chapter is to present the results of a search

for new means of resolving the controversy. To meet this end, the chapter

is divided into two major sections. Section 3.2 analyzes the controversy

in a new light in order to show that there is a primary and secondary

reason for its existence. By identifying these reasons the foundation

is laid for the development of two empirical studies the results of which

could provide new evidence that would aid in resolving the controversy.

Section 3.3 introduces these studies and explores the feasibility of

performing each.

3.2   The Basic Reasons for the Controversy

3.2.1   The Primary Reason

Further analysis of the controversy indicates that although there

would be no controversy if security gains and losses and a provision for

loan losses did not exist (the difference between Net Operating Earnings

and Net Income would be insignificant), the primary reason that it remains

unresolved is the belief that investors have single-figure fixation.

According to this belief investors focus almost entirely on the final

reported earnings figure in evaluating the current and potential performance

of a firm while other financial data included in the published financial

statements are largely ignored.[1]

The essence of this belief is perhaps best described in the following quotation taken from Forbes magazine:

> In our complicated, changing world it is not really possible to distill a whole year's operations of a vast business enterprise into a single absolute figure. The public, however, doesn't always appreciate this. Thus, the annual net earnings figure tends to have a magical significance - not only for the ordinary investor but for security analysts and even acquisition minded managements. It becomes in effect what grades are for the student - a measure of excellence, of progress or lack of progress.
>
> People tend to demand this kind of simplicity, and the single conveniently packaged net earnings figure has always seemed to fill the bill perfectly. Companies report them frequently - annually, quarterly and sometimes even monthly - and they carry the blessings of certified public accountants. So it is that reported earnings have become the common denominator of the stock market. On their reliability, billions of investment dollars are wagered.[2]

The antithesis of this belief holds that investors are of a more rational nature. They realize that many financial factors must be considered in evaluating a firm's performance. Consequently, it does not matter so much what amount is presented as the final reported earnings figure as it does that all pertinent financial facts are disclosed in the financial statements.

That the existence of the belief in single-figure fixation is widespread is shown not only by the above quotation but also by the following references to its existence:

> The board's [Accounting Principles Board] most complex decision came as it struggled to divulge what Savoie [Leonard

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[1]Single figure fixation, in the sense used here, pertains only to information in the financial statements. It does not mean that investors ignore such external factors as gross national product, industry trends, sales forecasts, etc. in making investment decisions about a particular stock.

[2]"What Are Earnings? The Growing Credibility Gap." Forbes, May 15, 1967, p. 28.

M. Savoie, exeuctive vice-president of the AICPA] calls "ersatz-
earnings" -- per-share profits derived from fancy financial
footwork. This is a sensitive matter because many investors
mistakenly believe that they can gauge a stock's merit simply
by checking per-share earnings. (Emphasis added.)[3]

"Net Income" figures are widely published, and in spite
of admonitions against the use of a single figure in assessing
the operating results of an enterprise, there is evidence that
such a figure is, in fact, widely used and relied upon by
investors and others.[4]

Evidence that accountants believe in the existence of single-

figure fixation is found in the following statements taken from AICPA

publications. Accounting Research Bulletin No. 43 makes the following

reference to it:

In its deliberations concerning the nature and purpose of
the income statement, the committee has been mindful of the
disposition of even well-informed persons to attach undue
importance to a single net income figure and to earnings per
share shown for a particular year. (Emphasis added.)[5]

In advocating the presentation of earnings-per-share figures before and

after extraordinary items, APB 9 concludes that,

not only will this format increase the usefulness of the reports
of results of operations of business entities, but it will also
help eliminate the tendency of many users to place undue emphasis
on one amount reported as earnings per share.[6]

While this researcher has found no explicit statements by bankers

indicating that they believe in the existence of single-figure fixation,

it is not difficult to reach this conclusion. First, the bankers'

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[3]Time, p. 96.

[4]Leopold A. Bernstein, Accounting for Extraordinary Gains and Losses
(New York: The Ronald Press Company, 1967), p. 15.

[5]Accounting Research and Terminology Bulletins (Final Edition;
New York: AICPA, 1961), Accounting Research Bulletin No. 43, p. 65.
Subsequently referred to as Bulletin 43.

[6]APB 9, p. 119.

contention that investors will make misleading inferences if Net Income
is published as the final reported earnings figure indicates that they
do not believe that investors look beyond the final reported earnings
figure.

Second, the existence of single-figure fixation provides the only
plausible explanation as to why bankers have been reluctant to present
some measure of Net Income as the final reported earnings figure. As
support for this conclusion, consider the affect that a change from Net
Operating Earnings to Net Income is likely to have on the market price of
a bank's stock if single-figure fixation exists. The price would fall for
two reasons.

First, Net Income is likely to be lower over time than Net Operating
Earnings because of the annual provision for loan losses included in the
determination of Net Income. As David Cates, the bank stock analyst at
Loeb, Rhodes & Company puts it:

> Many banks hesitate to be the leader in lowering the level of
> reported earnings, the natural consequence to be anticipated from
> "All-Inclusive" accounting. This reluctance is understandable, to
> the extent banks compete for prestige, a high market price for
> distribution of stock, or to attract merger candidates with high-
> priced shares. [sic.] [7]

Second, Net Income is likely to fluctuate more than Net Operating
Earnings because of the nature of security gains and losses. Earlier it
was pointed out that bankers lump all security gains in one year and all
losses in another. The affect of this practice is to amplify any swings
in Net Operating Earnings. Figure 3 illustrates this point as it relates
to one bank - the First National Bank in Dallas. In this case, Net Income

[7]David C. Cates, "Developing Directions in Bank Accounting,"
Bankers Magazine, CL (Summer, 1967), p. 36.
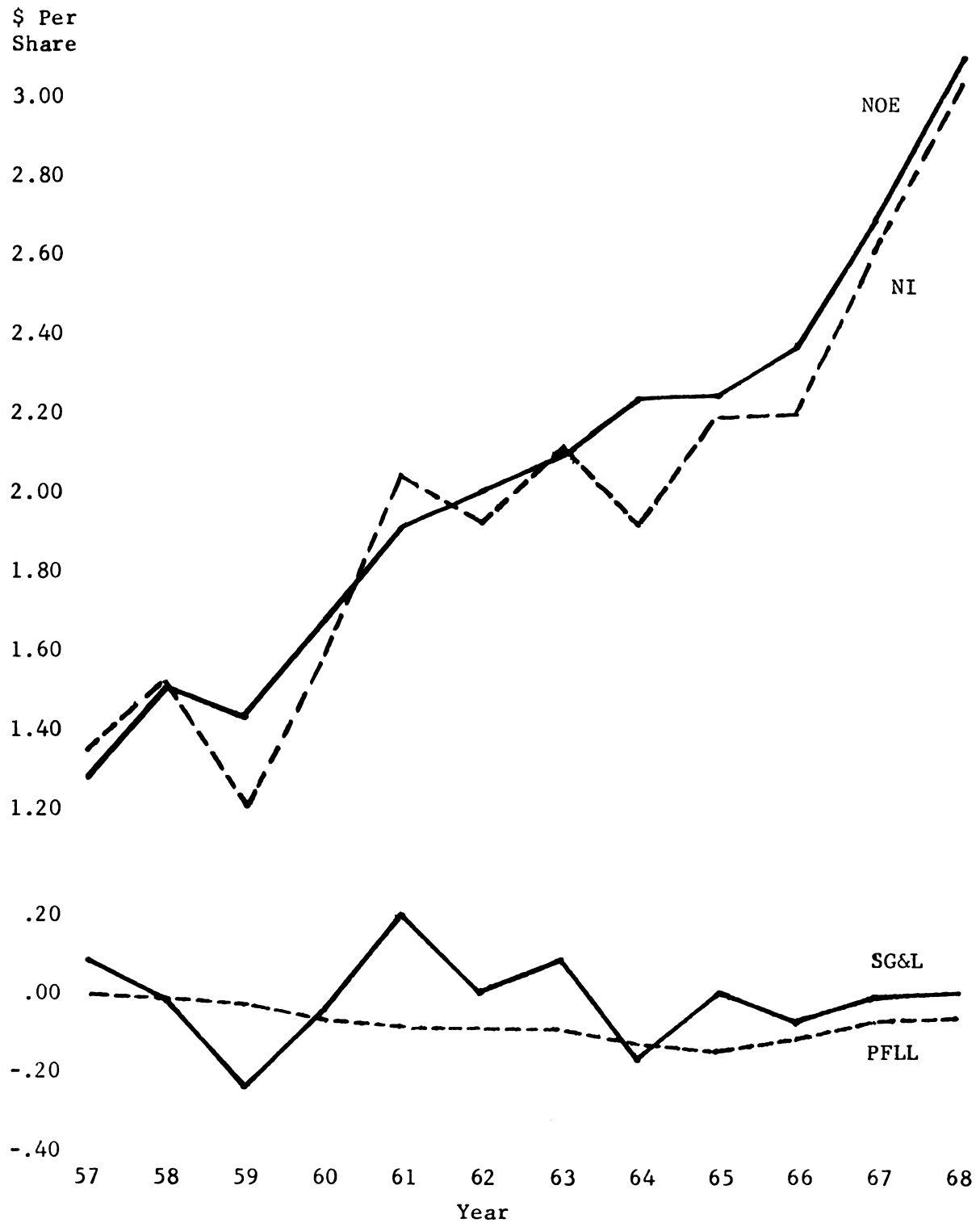
FIGURE 3

GRAPHIC PRESENTATION OF TWO EARNINGS PATTERNS

clearly is more volatile (i.e., fluctuates more widely) than Net Operating

Earnings. Aside from the fact that Net Income is likely to be lower

than Net Operating Earnings, publishing Net Income as the final reported

earnings figure is likely to have a downward affect on the bank's stock

price because investors prefer, ceteris paribus, smoothly rising earnings

to widely fluctuating earnings even though the two may be equal in the long

run.[8] The fluctuating earnings are considered to be of greater risk and

are given a lower market value.

Note, however, that the reduced amount and increased volatility of

the final reported earnings figure will have an affect on a bank's stock

price only if single-figure fixation exists. For the past three to five

years most large, publicly-held banks have been reporting actual loan

losses, the total tax-deductible provision for loan losses, and security

gains and losses in their published financial statements either as

supplementary information directly below Net Operating Earnings in the

income statement or in supplementary reserve reconciliation schedules.

Hence, even though these banks have not included these items in the

determination of their final reported earnings figure (i.e. - Net Operating

Earnings), information about them has been available to the interested

investor. Therefore, in the absence of single-figure fixation, the sudden

switch to reporting Net Income would have little affect on the market price

of a bank's stock since investors would already have taken the provision

for loan losses and security gains and losses into consideration in

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[8]See, for example, Jerome B. Cohen and Edward D. Zinbarg, _Investment Analysis and Portfolio Management_, (Homewood, Illinois: Richard D. Irwin, 1967), pp. 235-43, for a further discussion of this generally recognized investment principle.

valuing the stock of the reporting bank. The new final reported earnings figure would not serve as an unwarranted signal to them that there had been a sudden change in a given bank's performance because, ceteris paribus, there would have been no change in performance, only a change in reporting format.

A review of the literature on the subject of single-figure fixation indicates that little empirical evidence has been obtained in support of its existence. However, whether single-figure fixation exists is irrelevant. What really matters is whether the belief in its existence exists. The above discussion indicates that the belief does exist and that it is widespread.

3.2.2   The Secondary Reason

Belief in the existence of single-figure fixation leads to a secondary reason for the controversy -- a disagreement between bankers and accountants as to which of the two earnings measures is the most relevant single measure of a bank's performance. Bankers, of course, favor Net Operating Earnings while accountants argue for Net Income.

A disagreement of this nature is by no means unusual. Accounting Research Bulletin No. 43 discusses the matter as follows:

> The question of what constitutes the most practically useful concept of income for the year is one on which there is much difference of opinion. On the one hand, net income is defined according to a strict proprietary concept by which it is presumed to be determined by the inclusion of all items affecting the net increase in proprietorship during the period except dividend distributions and capital transactions. The form of presentation which gives effect to this broad concept of net income has sometimes been designated the all-inclusive income statement. On the other hand, a different concept places its principal emphasis upon relationships of items to the operations, and to the year, excluding from the determination of net income any material extraordinary items which are not so related or which, if included, would impair the significance of net income so that misleading inferences might

be drawn therefrom. This latter concept would require the income statement to be designed on which might be called a current operating performance basis, because its chief purpose is to aid those primarily interested in what a company was able to earn under the operating conditions of the period covered by the statement.[9]

Bankers, of course, have taken a current operating concept approach toward income reporting by arguing for the exclusion of security gains and losses and some provision for loan losses from current earnings. Accountants essentially favor the all-inclusive concept. Their position is espoused in APB 9, which now covers banks, as follows:

> Net Income should reflect all items of profit and loss recognized during the period except for prior period adjustments [which, it explains, are expected to be rare], with extraordinary items to be shown separately as an element of net income of the period . . .[10]

Whether bankers are justified in defending their position from a current operating viewpoint is open to question. The basic difference between the all-inclusive and current operating concepts is the financial statement treatment of extraordinary items. However, just what constitutes an extraordinary item is not altogether clear. In his authoritative study on Accounting for Extraordinary Gains and Losses, Leopold Bernstein has described four types of extraordinary items: "(1) items affecting results of prior years; (2) non-recurring operating gains or losses; (3) recurring non-operating gains or losses; and (4) non-recurring, non-operating gains and losses."[11]

Given this classification scheme, bankers presumably would place security gains and losses and the provision for loan losses in category

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[9]Bulletin 43, p. 60.

[10]APB 9, p. 107.

[11]Bernstein, pp. 11-13.

(1) or (3) on the basis of their arguments presented in sections 2.2.1 and 2.3.1 of Chapter II. As has already been indicated, accountants contend that, with the exception of the contingency element included in the tax-deductible provision for loan losses, security gains and losses and a provision for loan losses are really a normal part of a bank's operations and should not be treated as extraordinary. This disagreement remains unresolved because, as Bulletin 43 so aptly puts it, "the ultimate distinction between <u>operating</u> income and <u>non-operating</u> gains and losses, terms having considerable currency in the accounting profession, has not been established."[12]

The important point, however, is not whether bankers are justified in identifying themselves as advocates of the current operating concept, but whether they have done so. Their actions indicate that they have.

3.2.3 Summary

The purpose of this section was to show that there is a primary and secondary reason for the controversy. The primary reason is the belief in the existence of single-figure fixation. The secondary reason is the disagreement between bankers and accountants as to which of two earnings measures is the single most relevant measure of a bank's performance. The latter reason is identified as being secondary because it would not exist if it were not for the existence of the former. For, if bankers and accountants did not believe in the existence of single-figure fixation, the controversy could be resolved by reporting both Net Operating Earnings and Net Income in the income statement. The final reported earnings figure would lose its significance because investors would be considered

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[12]Bulletin 43, p. 60.

sophisticated enough to take each of the two earnings measures, along

with security gains and losses, a provision for loan losses and other

financial data into consideration in evaluating the performance of a

given bank. There would be no need to debate over which of the two

earnings measures was the most relevant.

3.3 Proposed Means of Resolving the Controversy

Given that there is a primary and secondary reason for the

existence of the controversy, this researcher suggests that evidence

which might aid in resolving the controversy could be obtained in one of

two ways. The first would be to test for the existence of single-figure

fixation. The second would be to evaluate the relevancy of each of the

two advocated earnings measures. If single-figure fixation was shown

to be nonexistent then, of course, the primary reason for the controversy

would have been found to be without basis. If single-figure fixation was

found to exist or if it were not possible to test for its existence, then

the development and performance of a test of the relevancy of the two

earnings measures could prove useful in resolving the controversy. For,

if one earnings measure was found to be more relevant than the other,

new evidence would exist in support of its publication as the final

reported earnings figure.

3.3.1 Test of Single-Figure Fixation

In an attempt to develop a means of testing for the existence of

single-figure fixation, this researcher discovered three empirical studies

dealing with this matter. Each of the studies centered on the public

utilities industry. Each employed market prices as the operational

variable used to measure the affect of alternative accounting practices

on investors.[13] More specifically, each study attempted to determine if investors were able to recognize and account for the difference in earnings reported by utility companies which were classified either as "normalizing" or "flow-through". All firms in each study computed depreciation on an accelerated basis for tax purposes and on a straight-line basis for book purposes. Firms which followed deferred tax accounting principles were classified as "normalizing". Firms which deducted the entire amount of the current income-tax liability in computing reported net income were classified as "flow-through".

A priori, it was argued that if single-figure fixation existed there would be no difference between the average price earnings ratios of the "normalizing" companies and the "flow-through" companies in any given year. On the other hand, if single-figure fixation did not exist, the average price-earnings ratio of the "normalizing" firms would be expected to be higher than that of the "flow-through" firms. This latter argument was based on the fact that, ceteris paribus, in any given year, the reported earnings of the "flow-through" firms would be higher than those of the "normalizing" firms because of the large accelerated depreciation charges incurred by the utility companies over the period covered by the study. In the absence of single-figure fixation, investors would recognize that there was no difference between the performance of the two groups of firms and would therefore capitalize the earnings of

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[13]John L. O'Donnell, "Relationships Between Reported Earnings and Stock Prices in the Electric Utility Industry," The Accounting Review, January, 1965, pp. 135-143. John L. O'Donnell, "Further Observations on Reported Earnings and Stock Prices," The Accounting Review, July, 1968, pp. 549-553. Francis A. Mlynarczyk, Jr., "An Empirical Study of Accounting Methods and Stock Prices," Empirical Research in Accounting: Selected Studies, 1969 (published as a supplement to Vol. 7 of the Journal of Accounting Research), pp. 63-89.

the flow-through firms at a lower rate.

In general, the results of each of the studies indicated that investors in public utility stocks did not have single-figure fixation as related to the use of <u>alternative accounting principles</u> -- i.e., they were able to correctly differentiate between "flow-through" and "normalizing" companies in valuing reported earnings.

This researcher had originally planned to use methodology similar to that described above to determine whether investors in bank stocks have single-figure fixation as related to <u>alternative reporting practices.</u> However, in order to perform such a study it would be necessary to obtain adequate samples of two types of banks -- those that reported Net Income and those that reported Net Operating Earnings. Utilizing methodology similar to that employed in the utility studies, it would then be possible to compare, after certain adjustments, the average price-earnings ratios of the sample banks included in each reporting category. Unfortunately, too few banks, for which earnings data could be obtained, have ever reported Net Income as the final reported earnings figure. Furthermore, the reported Net Income figures of these banks were not comparable because varying accounting and reporting practices were employed in determining Net Income. Hence, it was not possible to obtain an adequate sample of comparable "Net Income" banks. Therefore, such a study could not be performed. Further attempts to develop a reasonable and practical means to test for the existence of single-figure fixation proved to be fruitless.

3.3.2   <u>Test of Relevancy</u>

Since a test of the existence of single-figure fixation was not feasible, efforts were focused on the second approach toward obtaining

evidence that might aid in resolving the controversy -- the development

and performance of an empirical study designed to determine which of

the two earnings measures was the more relevant.

Before determining the feasibility of performing such a study it

was first necessary to specify an operational definition of relevance.

Consequently, the prediction of future earnings was identified as being

the most relevant need of the primary users of a bank's final reported

earnings figure. This conclusion was based on the following pronouncement

by the American Accounting Association's Committee to Prepare a Statement

of Basic Accounting Theory.

> Almost all external users of financial information reported
> by a profit-oriented firm are involved in efforts to predict
> the earnings of the firm for some future period. Such predictions
> are the most crucial in the case of present and prospective equity
> investors and their representatives -- considered by many to be
> the most important of the user groups. Future earnings are the
> chief determinant of future dividends and future market prices of
> shares (given some predetermined price earnings ratio), which,
> when taken together, are generally considered to provide the
> primary basis for establishing a subjective value for the shares
> in the mind of the user. The past earnings of the firm are
> considered to be the most important single item of information
> relevant to the prediction of future earnings. It follows from
> this that past earnings should be measured and disclosed in such
> a manner as to give a user as much aid as practicable in efforts
> to make this prediction with a minimum of uncertainty. (Emphasis
> added.)
>
> . . . .
>
> A person using financial statements as an aid in predicting
> future earnings has a right to demand from the accountant measure-
> ments of past earnings that supply as much relevant information as
> possible.[14]

Additional support was found in the following statement made by Professor

Robert Sprouse:

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[14]American Accounting Association, Committee to Prepare a Statement
of Basic Accounting Theory, A Statement of Basic Accounting Theory
(Evanston, Illinois: 1966), pp. 23-24.

> The primary purpose of the measurement of last year's income reported to investors is to provide a basis for predicting future years' income.[15]

The primary users of a bank's final reported earnings figure were assumed to be (1) "present and prospective equity investors and their representatives" and (2) current and prospective depositors. Although the primary concern of depositors is the safety of their deposits and not the prediction of future earnings, they were included with investors as primary users of reported earnings on the grounds that they share the same interest in reported earnings as investors. This conclusion was reached via the following argument. The best current indicator of the degree of protection of depositors' funds is the bank's financial position as described in the current statement of condition (balance sheet). However, future financial position, and therefore future deposit protection, is, among other things, dependent on future earnings. Hence, it is argued that, even though depositors may be most interested in the statement of condition, the most relevant use that they make of reported earnings is the prediction of future earnings.

Once "the prediction of future earnings" was specified as the operational definition of relevance, it was possible to conceive of an empirical study to determine which, if any, of the two earnings measures was the more relevant. The purpose of such a study would be to determine the <u>relative capacity of the two earnings measures to predict future earnings</u>. The outcome of such a study could provide new evidence that

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[15]Robert T. Sprouse, "The Measurement of Financial Position and Income: Purpose and Procedure," <u>Research in Accounting Measurement</u>, ed. Robert K. Jaedicke, Yuji Ijiri and Oswald Neilsen (Evanston, Illinois: American Accounting Association, 1966), p. 106.

would aid in resolving the controversy if one earnings measure were found to have a predictive capacity superior to the other. For, given such an outcome, new support would exist for the presentation of the earnings measure with the superior predictive capacity as the final reported earnings figure on the grounds that it was the more relevant earnings measure. If, of course, neither earnings measure was found to have superior predictive capacities, no new evidence for resolving the controversy would have been uncovered. Additional research would still be needed in order to find an equitable solution to the controversy.

Further investigation indicated that it was possible to obtain the data necessary to perform such a study as it relates to large, publicly-held commercial banks. The methodology employed to perform the study is described in the following chapter while the empirical findings and conclusions are presented in Chapters V and VI, respectively.

3.4   Summary

The purpose of this chapter was to present the results of a search for new means of resolving the controversy. This goal was achieved as follows. The existence of the belief in single-figure fixation and a disagreement as to which earnings measure is the most relevant were shown to be the primary and secondary reasons, respectively, why the controversy remains unresolved. Specification of these reasons provided new criteria that could be used in an attempt to resolve the controversy. For, (1) if single-figure fixation could be found to be nonexistent there would be no logical grounds for the controversy or (2) if one earnings measure were found to be more relevant than the other there would be new evidence to support the presentation of that earnings measure as the final reported earnings figure.

Hence, two empirical studies were proposed, the first of which was designed to test for the existence of single-figure fixation and the second of which was designed to measure the relative relevance of the two earnings measures. Unfortunately, implementation of the first study was found not to be feasible. However, implementation of the second study was found to be feasible once "the prediction of future earnings" was specified as a surrogate for relevance. The second empirical study was formalized as a study to determine the relative capacity of Net Operating Earnings and Net Income to predict future earnings. The methodology and results of such a study are presented in the chapters that follow.

CHAPTER IV

METHODOLOGY

4.1   Introduction

The purpose of this chapter is to present the methodology employed
in an empirical study to determine the relative capacity of Net Operating
Earnings and Net Income to predict future earnings.

In order to operationalize such a test it was first necessary to
perform the following steps: (1) specify the forecast objective to be
used as a basis for determining the relative predictive capacity of each
earnings measure; (2) specify the forecast models to be used in predicting
future earnings; (3) select a sample of banks from the population of large
banks and obtain the necessary data; (4) calculate the earnings per share
for each bank for each year; and (5) specify and obtain a measure of
forecast error. These steps are described in detail in Sections 4.2
through 4.6 as follows:

4.2   Specification of the Forecast Objective

The forecast objective used as a basis for determining the relative
predictive capacity of the two earnings measures has previously been
referred to only as the prediction of "future earnings". A more specific
definition was needed in order to operationalize a test of relevancy.
Consequently, all-inclusive earnings (i.e. - Net Income) was specified
as the relevant forecast objective since it provides the best measure of
a bank's overall performance. This conclusion was based on the contention

that, subject to the limitations of the accounting process, the economic success or failure (i.e. - overall performance) of a corporate enterprise is best measured by the change in retained earnings, adjusted for capital and dividend transactions, over some period of time. The earnings measure that most accurately measures the change in retained earnings from one year to the next is all-inclusive earnings.

The above conclusion should not be interpreted as an indictment against Net Operating Earnings as a measure of current year earnings. The principle argument advanced in support of Net Operating Earnings as a measure of current earnings is that by excluding certain items from the measurement of a bank's current performance a better indication is obtained as to the future performance of the same bank. Future performance, however, involves more than just Net Operating Earnings. It encompasses all items affecting stockholders' equity exclusive of capital and dividend transactions. For, a bank's ultimate ability to earn a return for its owners is dependent upon all revenue and expense items regardless of whether they are identified as being nonoperating or extraordinary in nature.

The following example should serve to illustrate the above point. The illustrative income statements presented in Figures 1 and 2 (Section 1.2 of Chapter I) contained an extraordinary item identified in Figure 2 (the accountants' income statement) as a loss on the sale of a branch building. The amount of this loss was excluded from "Net operating earnings" as reported in Figure 1 (the bankers' income statement). Presumably the reason for excluding it was that it represented a loss or expense that was not likely to be incurred in the future. Since a future occurrence was unlikely, it could be argued that including such an amount in current earnings could result in misleading conclusions being drawn about the

bank's future performance by those who were unaware that such an item was included in the reported earnings figure.

Excluding an extraordinary loss from current earnings does not mean, however, that a current or prospective investor is not concerned about the bank's incurrence of extraordinary gains or losses. For example, assume that one or two years prior to the incurrence of the extraordinary loss a current or prospective investor was in the process of evaluating the bank's potential. He certainly would have been more interested in a predictive earnings measure that forecasted an earnings figure that included the loss than one that did not. For, such a loss will undoubtedly have some affect on the bank's performance subsequent to the year of its incurrence since, had the loss not been incurred, the bank would have had a greater net asset base from which to expand or maintain future operations.

Therefore, it was concluded that the only rational objective of a strictly predictive earnings measure such as Net Operating Earnings is the prediction of all-inclusive earnings (i.e. - Net Income) not the prediction of a predictive income figure.[1]

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[1]One argument for predicting Net Operating Earnings rests on the notion that income cannot exist except as it is reported. Furthermore, it may be argued that market values are determined on the basis of reported earnings since, to the investing public, income _is_ the amount reported by the bank as earnings per share. In the short run there may be some validity to this position. Therefore, it might be considered worthwhile to compare the ability of each income measure to predict future earnings of the same series. It could then be argued that the measure determined to be the better predictor should be the reported earnings figure.

However, one wonders about the value of obtaining empirical evidence in support of an income measure that may knowingly mislead investors. Such could be the case if Net Operating Earnings was found to be the best self predictor and at the same time a poor predictor of all-inclusive earnings. In this case, it would be entirely possible for Net Operating Earnings to show steady improvement while retained earnings were being dissipated by large security and loan losses. Ultimately, perhaps through a reduction in dividend payments, the market would recognize the bank's "real" financial position. Losses to current stockholders could be severe. Since the purpose of this research is to obtain an empirically supported equitable solution to the reporting controversy, no attempt will be made to predict future Net Operating Earnings.

It may appear at first glance that, a priori, Net Income will be selected as the better predictor since by predicting itself it would be considered an unbiased predictor whereas Net Operating Earnings would not. Net Income would be considered an unbiased predictor on the basis that, ceteris paribus, over a large number of consecutive annual forecasts for a given bank, the expected value of the forecast error associated with Net Income as a predictor is equal to zero.[2] Net Operating Earnings, on the other hand, would not be considered an unbiased predictor since the expected value of the forecast errors associated with it as a predictor is not equal to zero due to the fact that it does not contain certain items, namely security gains and losses and a provision for loan losses, that are included in Net Income -- the figure it is being used to predict.

Although the above statements as to the biasedness or unbiasedness of the two earnings measures are correct, the following statistical analogy is presented to show that lack of bias alone is not sufficient grounds for drawing the a priori conclusion that one earnings measure is superior to the other as a predictor.

> Suppose we have two estimators y and z of the population mean $\bar{X}$. Let y be an unbiased and z be a biased estimator of $\bar{X}$. Which estimator should we use?
> We should use the one that we may expect to be closer to $\bar{X}$. Let us explain this statement with the following illustration. Suppose the distribution of y and z may be shown diagrammatically as in Figure 4. As shown, the dispersion of z is much smaller than that of y, except that z is distributed around $E(z) = \bar{X} + b$ whereas y is distributed around $E(y) = \bar{X}$. However, we can see intuitively that if the bias b is small, even though z is biased, because its dispersion is much smaller than that of y, it will probably give us an estimator that is closer to $\bar{X}$.

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[2]The "expected value of the forecast error for a given bank over a large number of consecutive annual forecasts" should not be confused with the "expected value of the forecast error for a given year over a large number of banks." The former concept relates only to a single bank while the latter is concerned with several banks.
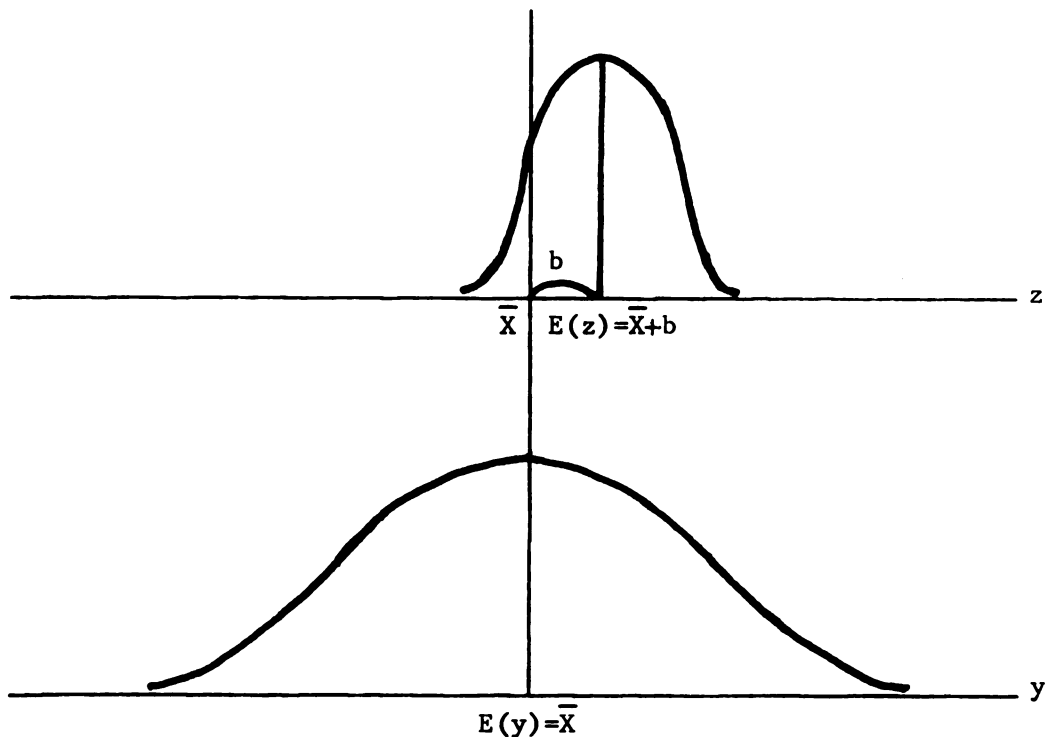
FIGURE 4

GRAPHIC ILLUSTRATION OF BIAS AND EFFICIENCY

The implication of this reasoning is that a biased estimator
may be better than an unbiased one, depending on the magnitude of
the variance and the bias. (Emphasis added.)[3]

Since it is known that Net Operating Earnings is a biased predic-

tor of Net Income, the question of whether it is a better predictor

depends upon how much more efficient a predictor it is than Net Income --

i.e., how much lower is the variance associated with it than Net Income.[4]

A priori, Net Operating Earnings would appear to be a more efficient

predictor for short-run (i.e. - one-year) forecasts since, as has been

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[3]Taro Yamane, Elementary Sampling Theory (Englewood Cliffs, N.J.:
Prentice Hall, Inc., 1967), p. 61.

[4]Once again it should be noted that the variance referred to here
pertains to the "variance of the forecast errors for a single bank over a
large number of years" and not "the variance of the forecast errors for
a given year over a large number of banks."

pointed out in Chapter III, the inclusion of security gains and losses and

a provision for loan losses in the determination of Net Income is likely

to make Net Income a more volatile figure than Net Operating Earnings.

Granted that Net Income is likely to be the more volatile of the two

earnings measures, it follows that the variance of the annual forecast

errors associated with it as a predictor are likely to be greater than the

variance of the errors associated with Net Operating Earnings. However,

whether the presumed greater efficiency of Net Operating Earnings as a

predictor is sufficient to overcome its biasedness as a predictor can be

determined only by empirical test and not by a priori reasoning.

When the annual algebraic forecast errors for a given bank are

aggregated over some long-run period (i.e., two or more years) in arriving

at a multi-year forecast error it would be expected that as the number of

years included in the multi-year forecast-error-period became longer and

longer Net Income would eventually become, if it already was not, the

superior predictor. This conclusion is based upon the following argument.

As the number of years in the forecast-error-period is increased the

variance of the multi-year forecast errors should decline since more and

more annual overforecasts and underforecasts are allowed to offset each

other thereby reducing the size and range of the multi-year forecast errors.

As the efficiency of each earnings measure improves, bias becomes a more

important factor in determining the better predictor. As an unbiased

predictor, Net Income should, if it already is not, become a better

predictor when the efficiency of Net Operating Earnings as a predictor is

not sufficient to overcome the biasedness of Net Operating Earnings.

However, whether Net Income will become, if it already is not, a superior

predictor when the multi-year forecast-error-period contains two years,

four years, or ten years can only be determined by empirical test.

4.3   Specification of Forecast Models

In order to obtain forecasts of future all-inclusive earnings it was necessary to specify a forecast model or models to which earnings data from prior years could be input. Six such forecast models were employed in this empirical study. The purpose of each model was to predict "current" year earnings-per-share. These forecast models are identified and described as follows:

S_1:   Forecast earnings equal earnings for last year.

S_2:   Forecast earnings equal earnings for last year plus the dollar change in earnings of last year over the preceding year.

S_3:   Forecast earnings equal earnings for last year plus the same percentage change in earnings of last year over the preceding year.

R_1:   Forecast earnings is the dependent variable derived from the linear equation $y = a + bt$ where t is the current year and a and b are parameters determined by regressing actual earnings on time for the three preceding years.

R_2:   Same as R_1 except that the parameters are determined by regressing earnings on time for the four preceding years.

R_3: Same as R_1 and R_2 except that the parameters are determined by regressing earnings on time for the __five__ preceding years.

In formula form these forecast models appear as follows:

S_1: $FE_t = E_{t-1}$

where: FE = forecast earnings-per-share

E = actual earnings-per-share

t = current year

S_2: $FE_t = E_{t-1} + (E_{t-1} - E_{t-2})$

S_3: $FE_t = E_{t-1} \dfrac{(E_{t-1})}{(E_{t-2})}$

R_1: $FE_t = a + bt$

where: a and b = parameters determined from a simple, least squares linear regression of actual earnings on time for the years t-4 through t-1

For example, using this forecast model, earnings data for the years 1959-61 served as inputs to determine the parameters of the forecast equation which in turn was used to predict 1962 earnings-per-share.

R_2: Same as R_1 except that the regression parameters are based on actual earnings for the years t-5 through t-1.

R_3: Same as R_1 and R_2 except that the regression

parameters are based on actual earnings for the

years t-6 through t-1.

Four of the six forecast models were suggested by other research

studies. Models S_1, S_2 and S_3 were developed and used by Professors

Green and Segall in their studies of the predictive power of first quarter

earnings reports.[5] Model R_3 was used by Professor James Parker in his

study of the predictive capacity of current operating and all-inclusive

earnings.[6] Models R_1 and R_2 are merely variations of Parker's model.

A model or models that assumed more sophistication on the part of

investors could have been developed. For example, models employing longer

base periods or affixing different weights to the various years in the

base period could have been designed. Or models that employed additional

independent variables such as deposit size, interest income, security

gains and losses, etc. could have been devised. However such models were

rejected as being inconsistent with the notion of the naive investor as

implied in the single-figure fixation concept.

Earlier it was shown that there was a primary and secondary reason

for the controversy. The primary reason was the existence of the belief

that investors in bank stocks have single-figure fixation. The secondary

reason was the disagreement between bankers and accountants as to the most

relevant single earnings measure. Furthermore it was disclosed that

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[5]David Green, Jr. and Joel Segall, "The Predictive Power of First-Quarter Earnings Reports," The Journal of Business, XL, No. 1 (January, 1967), pp. 44-55, and "The Predictive Power of First-Quarter Earnings Reports: A Replication," Empirical Research in Accounting: Selected Studies, 1966, (supplement to Volume 4 of the Journal of Accounting Research), pp. 21-43.

[6]James E. Parker, "A Study of the Predictive Significance of Several Income Measures Relative to the Accounting for Extraordinary Items and Prior Period Adjustments" (unpublished Ph.D. dissertation, Graduate School of Business Administration, Michigan State University, 1969), p. 1.

59

neither the controversy nor the secondary reason would exist if it were

not for the primary reason. Hence, any attempt to resolve the controversy

by evaluating the secondary reason must be based on the assumption that

single-figure fixation exists. For, as was pointed out in Chapter III,

if it does not exist, there is no need to test for relevancy since it no

longer matters which of the two measures is the more relevant.

Granted the assumption as to the existence of single-figure

fixation, it seems logical to conclude that investors who focus almost

solely on a single earnings-per-share figure merely extrapolate the trend

of earnings from some prior period. Therefore, the forecast models were

purposely kept "simple".

Mention of one limitation is appropriate at this point. The results

of any study employing the criterion of predictive capacity are dependent

in part upon the particular forecast model(s) employed. Positive results

represent a joint confirmation of both the model(s) and the measurement

under study. Negative results, however, may be due to an error in either

or both elements. Hence, it is possible to argue that use of a different

model could have turned the results of a given test around. In fact,

regardless of how many models are employed, it is always possible to argue

that some untested model would give the opposite results. The only defense

against this argument is an intuitive appeal based upon the reasonableness

of the forecast model(s) used. Such an appeal is made in the case of the

models discussed above.

4.4   Sample Selection and Data Source

Data necessary to compute Net Operating Earnings and Net Income

were obtained from 26 large, publicly-held commercial banks for the

twelve-year period ending December 31, 1968. The period was limited to

were the basic inputs of the forecast models it was necessary to convert all the original financial data obtained into comparable earnings per share figures. The first two steps in this conversion process consisted of developing a working definition of Net Operating Earnings and Net Income. The third step consisted of the computation of a "normal provision for loan losses" since such an amount was not provided by the banks. The fourth and final step eliminated the effects of stock splits and stock dividends on the average shares outstanding during the period of the study.

4.5.1 Computation of Net Operating Earnings

The figure described as Net Operating Earnings or Net Operating Income in the income statement contained in the annual report was used as the basis for the determination of Net Operating Earnings as used in this study. For most banks for most years there was no need to make any adjustments to this reported figure. However, each annual report was reviewed to determine if the reported Net Operating Earnings figure included amounts considered to be (1) appropriations of retained earnings, (2) security gains or losses, (3) amortization of security gains and losses, (4) a provision for loan losses, and/or (5) tax adjustments related to any of the previous four items. In each incident where amounts of the above nature were discovered, reported Net Operating Earnings was adjusted to exclude such amounts.

Fortunately, in all instances where items (1) and (3) were encountered, the amount of the applicable income tax adjustments, if any, was disclosed in the annual report. Hence, it was not necessary to make any estimates as to the tax adjustment. In most instances where items (2) and (4) were discovered, the applicable tax adjustment was provided. On

the few occasions when the tax adjustment was not given it was estimated as follows:

(A) For security gains, it was determined by multiplying the amount of the gain by the capital gains rate in effect during the year of the reported gain.

(B) For security losses and loan loss provisions, it was computed by multiplying the amount of the security loss or loan loss provisions by the marginal tax rate in effect during the year the amounts were reported.

The reasons for excluding each of these five items was to make the annual Net Operating Earnings of all banks included in the study as comparable as possible in terms of the treatment of each of the five items.

4.5.2 Computation of Net Income

Net Income was computed by adjusting Net Operating Earnings as defined in the preceding section to include (1) security gains or losses, (2) a "normal" provision for loan losses,[9] (3) other appropriate nonoperating revenue and expense items excluded from Net Operating Earnings but reported in the annual report, and (4) tax adjustments related to any of the preceding three items.

"Other appropriate nonoperating revenue and expense items" included all remaining noncapital adjustments to stockholders equity except amounts determined to be appropriations of retained earnings. Such noncapital adjustments included extraordinary items and prior period adjustments. Also included were revenue and expense items such as pension past service costs which had previously been excluded from Net Operating Earnings.

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[9]A definition of "normal" will be presented later.

Examples of appropriations of retained earnings which were ignored in
determining Net Income are transfers to and from both unspecified
"contingency" reserves and security valuation reserves.

On the rare occasion when the tax adjustment attributable to item
(1) was not disclosed in the annual report it was computed on the same
basis as disclosed in (A) and (B) of the preceding section. The determina-
tion of the tax adjustment attributable to item (2) is discussed in the
following section. When the tax adjustment applicable to item (3) was
not disclosed, it was computed by applying the marginal tax rate in
effect in the year of the adjustment.

4.5.3   Computation of a Normal Provision for Loan Losses

Previous discussion in Chapter II pointed out that the total tax
deductible provision for loan losses is intended to allow banks to accumu-
late a reserve for two types of loan losses. The first type was identified
as those of a normal recurring nature. The second type was identified as
those which occur at infrequent, irregular, and unpredictable intervals
such as during a depression or severe recession.

Both bankers and accountants have agreed that the portion of the
provision applicable to the second or contingency type of loss should not be
charged against current earnings. Of course, the means which each side pro-
poses to utilize in excluding this amount differ, with bankers favoring the
exclusion of the total provision for loan losses while accountants prefer
to exclude only the contingency portion. Aside from the arguments presented
by both sides it is apparent that (1) to include the total tax deductible
provision in Net Income would result in a consistent understatement of
earnings and (2) to exclude the total tax deductible provision from Net
Income would result in a consistent overstatement of earnings. This

conclusion is supported by the fact that the total tax deductible provi-
sion for loan losses of Federal Reserve member banks was more than double
the actual loan losses of these banks for the period from 1957-68.
(See Table I).

Therefore, for purposes of this research, the net of tax excess
of the tax deductible provision for loan losses over a "normal" provision
was excluded from the determination of Net Income. This excess was
treated as an appropriation of retained earnings since its purpose is
to provide a contingency reserve for some indeterminable future loss.
The tax reduction applicable to the excess was also excluded from Net
Income since it was treated as a deferred tax credit.

While it made the determination of Net Income more difficult and
involved the utilization of estimates, the computation and use of a normal
provision for loan losses was considered necessary if a realistic Net
Income figure was to be computed. It is recognized that the use of
estimates places limitations on the conclusions that can be drawn from
the study. However, failure to use a Net Income figure that excluded the
excess provision would subject the results to the far greater criticism
of being irrelevant. Therefore, the normal provision for loan losses for
a given year was considered to be the average of the actual loan losses
for a three-year period encompassing (1) the current year, (2) the preceding
year, and (3) the subsequent year.

One exception was made to this procedure. Since the actual loan
losses for 1969 were not known at the time this study was implemented, the
normal provision for loan losses for 1968 was considered to be the average
of the actual loan losses for 1968 and 1967.

This method of estimating a normal loan loss provision falls

somewhere between the two methods originally proposed by bankers and the bank regulatory agencies following the July 8, 1969 compromise. The first method required that the minimum charge be "equivalent to the five-year average ratio of losses computed on the basis of net charge-offs to total loans."[10] An additional amount based on management's judgment could be provided so long as "adequate disclosure of such discretionary action was included in a referenced footnote." The second method allowed banks that were on the charge-off basis of recognizing loan losses to charge current operations with an amount equal to the actual charge-offs for the year.[11]

Subsequent to the issuance of instructions describing these two methods, a third method has been approved. This method allows banks to determine the minimum charge on the basis of a five-year average moving forward. This five-year average would involve using actual charge-offs for 1969, a two-year average in 1970, and so on until a five-year average was built up in 1973.[12] Presumably, support for this method came from those banks that have had heavy loan losses in the past five years, but have improved the quality of their loan portfolio.

Each of these three methods and the one proposed for use in this study are designed to provide a surrogate for actual loan losses that will result from loans currently outstanding. Obviously, some estimate is necessary since the actual loan losses will not be known until sometime in the future.

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[10]Letter from J. T. Watson, Acting Comptroller of the Currency, to the presidents of all national banks, Washington, D.C., July 24, 1969.

[11]Ibid.

[12]Merrill Lynch, Pierce, Fenner & Smith Inc. wire flash A 918, November 4, 1969.

Sound arguments can be presented in support of each proposed method. For example, if a bank has had little or no change in its lending policy or the quality of its loans outstanding for the past five years, then the use of a past five-year ratio based on actual losses may well provide the best estimate of future losses. However, if there has been a change in the bank's lending policy during the past five years and the new policy is expected to remain in effect for the next few years, then the use of the five-year average moving forward is likely to prove the better estimator. The use of actual losses for the current year can be justified when the balance in the loan account has remained fairly constant over the last few years and there has been little or no change in the quality of outstanding loans.

The three-year average of the current, preceding and subsequent years used in this study represents a compromise of the three methods discussed above. The three-year average can be defended on the following grounds.

1) The period involved is long enough to diffuse the effects of unusually large or small write-offs that may occur in any given year.

2) The period involved is short enough to give effect to changes in the size of the balance of loans outstanding.

3) The use of the "subsequent" year gives some recognition to the effect that changes in (1) the size of the loan balance and (2) lending policy would have on future loan losses.

4) It recognizes that management is in the best

position to determine what a normal provision for

loan losses should be. The use of the "subsequent"

year serves as a proxy for management's estimate of

future loan losses.

While the three-year method can be justified on theoretical grounds

as well as any of the other proposed methods, practical considerations

also dictate its usage in this study. Due to the lack of reported data

for years prior to 1957 this study was limited to the twelve-year period

ending in 1968. Excluding the method used to determine the normal provision

for loan losses, the number of forecast years varies from seven to eleven

depending on the forecast model used.

By obtaining the actual loan losses for each bank for 1956 and

by using the two-year average method for 1968 instead of the three-year

average it was possible to keep the range of forecasts at seven to eleven

years.

Use of either of the five-year methods would have reduced the

range of forecast years by two years to five to nine years. Naturally,

the validity of this study is dependent upon the number of years for

which results can be obtained. The larger the number of years the more

valid are the conclusions. Since the arguments for using either of the

five-year methods are not superior to those of the three-year method,

the three-year method was used since it resulted in a greater number of

forecast years.

The tax reduction attributable to the normal provision for loan

losses was deducted from the computed normal provision to arrive at the

net of tax normal provision. The amount of the tax adjustment was

determined by applying the marginal corporate income tax rate in effect

in the year for which the provision was computed.

4.5.4   Adjustment for Stock Dividends and Splits

Since all earnings data used in the forecast models were in the form of earnings per share it was necessary to adjust for stock dividends and stock splits that occurred during the period of the study. Accordingly, an adjustment factor was computed for each bank for each year in the study and was applied to the amounts previously reported as (or determined to be) earnings-per-share for the year. The year 1969 serves as the standard of comparison. The following formula was used to determine the adjustment factor for a given year:

$$AF_{19Y-1} = 1 \cdot \frac{1}{1 + P_{1968}} \cdots \frac{1}{1 + P_{19Y+1}} \cdot \frac{1}{1 + P_{19Y}}$$

where: AF = Adjustment factor

Y = year in which the stock dividend or split occurred

P = number of new shares issued as a stock dividend or stock split expressed as a percentage of the number of shares outstanding prior to the dividend or split

4.6   Specification of a Forecast Error Measure

The measure of forecast error used in subsequent evaluations of the relative predictive capacity of the two income measures was the percentage (relative) forecast error. The use of a percentage forecast error measure was selected over an absolute forecast error measure (forecast earnings-per-share minus actual earnings-per-share) in order to avoid

distortions due to differences in bank size and income levels when aggregating error measures. One weakness of the percentage error measure is that it assigns great weight (when aggregating error measures) to small absolute errors when earnings-per-share are close to zero. This deficiency in the percentage error is not too serious if earnings-per-share are close to zero because the number of outstanding shares is large; but if earnings-per-share are close to zero because of an abnormally bad year, heavy weights for small errors can be misleading. Fortunately, none of the earnings-per-share figures used in this study came close to approaching zero nor were any of the earnings-per-share figures negative. Therefore, the deficiency associated with the use of a percentage error measure was not of concern.

4.7 Summary

The purpose of this chapter was to present the methodology employed in an empirical study to determine the relative capacity of Net Operating Earnings and Net Income to predict future earnings. Since such a purpose has been achieved it is now possible to turn to a discussion of the empirical findings derived from the implementation of this methodology. The following chapter presents such a discussion.

CHAPTER V

EMPIRICAL FINDINGS

5.1   Introduction

The purpose of this chapter is to present the empirical findings

of this research study.   To meet this end, the chapter is divided into

five major sections.   Section 5.2 identifies the two criteria used in

evaluating the forecast errors.   Sections 5.3 and 5.4 present the results

according to each criteria.   Section 5.4 discusses the possible cause of

an observable trend in the forecast errors.   Finally, Section 5.5

summarizes the discussion and observations about the empirical findings

presented in the preceding sections.   All conclusions are reserved until

Chapter VI.

5.2   Identification of Evaluation Criteria

The relative predictive capacity of the two earnings measures was

evaluated according to two concepts of user needs.   Under the first or

short-run concept, the forecaster of future bank earnings is viewed as

being most interested in that earnings measure which is most likely to

produce the lowest forecast error for a given bank for the subsequent

year.   Under the second or long-run concept, the forecaster of future bank

earnings is viewed as being most interested in that earnings measure which

is most likely to product the lowest aggregate forecast error for a

given bank for some future long-run period ranging, for purposes of this

research, from two to seven years.

Two specific criteria were developed from these two concepts in order to evaluate the percentage forecast errors generated by each of the six forecast models employed in this empirical study.

> Short-run criterion -- Under the short-run criterion, the earnings measure which produced the lowest absolute annual forecast error was designated the best predictor of future Net Income.

> Long-run criterion -- Under the long-run criterion, the earnings measure which produced the lowest absolute forecast error over a given multi-year time period was designated as the best predictor of future Net Income.[1]

As indicated in each of the criteria, the absolute percentage forecast error served as the basis for comparing the predictive capacity of the two earnings measures. Accordingly, an earnings measure which produced an individual or aggregate percentage forecast error of -5% (i.e. - an underforecast of 5%) was considered to be no better or no worse than the earnings measure which produced an individual or aggregate forecast error of +5% (i.e. - an overforecast of 5%). In other words, there was assumed to be no difference in the penalties associated with overforecasts and underforecasts of comparable size.

The empirical findings of this study are presented separately according to each criterion in Sections 5.3 and 5.4 as follows.

5.3 Results Analyzed According to the Short-Run Criterion

5.3.1 Aggregation Procedures

The basic measure used to evaluate the relative predictive capacity

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[1]The terms "long-run" and "short-run" are used in this chapter solely to facilitate the presentation and analysis of the results of this study. It is recognized that the terms are relative in nature and that what is considered to be "long-run" by one person or in one instance may be considered to be "short-run" by another person or in another instance. Consequently, it should be noted that no assertion is made that the short-run is one-year or that the long-run varies from two to seven years.

of the two earnings measures under the short-run criterion was the absolute value of FE_{ij} - the percentage forecast error for bank i in forecast year j. FE_{ij} was calculated according to the following formula:

$$FE_{ij} = \frac{F_{ij} - A_{ij}}{A_{ij}}$$

where: F_{ij} = forecast earnings for bank i in year j

A_{ij} = actual Net Income for bank i in year j

Table III shows, for the 26 banks included in the study, the mean absolute percentage forecast error for (1) each forecast year, (2) selected three-year periods, (3) the 1962-68 period, and (4) the total period covered by each forecast model. The latter two periods were included for the following reasons. Although the data used in the study encompassed twelve years (1957-68), the number of forecast years covered by the forecast models varied because of differences in the number of base years employed by the six models. For example, model S_2 required two-years' input before it could be used to forecast current earnings whereas model R_3 required five-years' input. Hence, while model S_2 could be used to forecast earnings beginning in 1959, model R_3 could not be used until 1962. The 1962-68 period contains the maximum number of forecast periods that was common to all of the forecast models. Data for the 1962-68 period were included in Table III and subsequent tables for use when comparing performances across all forecast models. Data for the total period covered by each forecast model were presented for use when analyzing a single forecast model.

Table II shows the number of base years and forecast years associated with each forecast model along with additional information about

TABLE II

SELECTED INFORMATION ABOUT THE FORECAST MODELS

Forecast Model	Number of Base Years Employed by Forecast Model	Number of Forecast Years	Number of Banks	Total Number of Forecasts (col.3 x col.4)	Period Covered
S_1	1	11	26	286	1958-68
S_2	2	10	26	260	1959-68
S_3	2	10	26	260	1959-68
R_1	3	9	26	234	1960-68
R_2	4	8	26	208	1961-68
R_3	5	7	26	182	1962-68

each model. However, for a description of the forecast models themselves, the reader should refer to Section 4.3 of Chapter IV.

Each annual mean absolute percentage forecast error figure $(\bar{M}_j)$ shown in Table III was determined according to the following formula:

$$\bar{M}_j = \frac{\sum_{i=1}^{m} |FE_{ij}|}{m}$$

where: m = 26, the number of banks

FE_{ij} = the percentage forecast error for bank i in forecast year j

The mean absolute percentage forecast error for each three-year period, the 1962-68 period, and the total period covered by each forecast model was calculated by averaging the annual means $(\bar{M}_j)$ for the period in question. For example, the total-period mean absolute percentage forecast error for model R_1 was computed by averaging the annual mean forecast errors $(\bar{M}_j)$ for the years 1960 through 1968 whereas the 1962-68 mean was obtained by

averaging the annual means for the years 1962 through 1968.

Since the reliability of an average forecast error depends not only on the size of the forecast error but also on the degree of dispersion of the individual forecast errors around this average, the mean deviation of the absolute percentage forecast errors was computed. Table IV shows, for the 26 banks included in the study, the mean deviation for periods identical to those presented in Table III. The annual mean deviation figures ($\overline{MD}_j$) were determined according to the following formula:

$$\overline{MD}_j = \frac{\sum\limits_{i-1}^{m} |AFE_{ij} - \overline{M}_j|}{m}$$

where: m = 26, the number of banks

$AFE_{ij} = |FE_{ij}|$, the absolute percentage forecast
error for bank i in forecast year j

$\overline{M}_j$ = mean absolute percentage forecast error in
forecast year j

The mean deviation for each three-year period, the 1962-68 period, and the total period covered by each forecast model was calculated by averaging the annual mean deviations ($\overline{MD}_j$) for the period in question.

One other way of analyzing the results of this study is to tabulate the number of banks, in any given period, for which each of the two earnings measures produced the lowest annual absolute forecast error. Table V presents the results of such a tabulation for periods identical to those presented in Tables III and IV. The principal advantage of this analytical method is that it is simple, straight-forward and presents the results in a manner that is more easily comprehended and assimilated than the two previously mentioned methods. The primary disadvantages are (1) that it fails to provide any information about the magnitude of the forecast errors

TABLE III

MEAN ABSOLUTE PERCENTAGE FORECAST ERROR: FORECAST-ERROR-PERIOD EQUAL TO ONE YEAR

Forecast Model / Earnings Measure	S_1		S_2		S_3		R_1		R_2		R_3	
	NOE	NI	NOE	NI	NOE	NI	NOE	NI	NOE	NI	NOE	NI
Period												
1958	20.6%	25.2%										
1959	26.4	61.9	24.4%	101.9%	25.2%	134.7%						
1960	16.0	34.7	16.5	67.6	16.9	52.8	15.8%	30.2%				
1961	14.7	27.8	15.6	51.4	16.1	95.5	15.2	35.9	14.3%	29.7%	11.2%	17.3%
1962	8.5	18.2	10.8	43.4	10.8	43.7	11.0	39.1	12.3	18.3		
1960-62	13.1	26.9	14.3	54.1	14.6	64.0	14.0	35.1				
1963	9.0	8.9	10.7	25.2	10.5	24.2	11.1	13.0	8.5	19.0	8.9	10.1
1964	10.3	9.9	11.5	14.8	11.7	15.4	11.5	13.6	12.8	12.9	11.2	18.9
1965	10.4	12.6	12.3	16.8	13.0	16.2	10.9	13.9	10.4	15.5	11.8	14.3
1963-65	9.9	10.5	11.5	18.9	11.7	18.6	11.2	13.5	10.5	15.8	10.6	14.4
1966	13.9	13.3	18.5	22.6	19.2	26.2	19.8	16.1	18.2	13.4	15.9	15.7
1967	8.0	19.7	13.9	24.9	15.9	23.4	10.6	16.8	9.0	16.8	7.9	16.7
1968	8.0	11.1	12.6	20.1	13.2	26.8	14.9	11.8	14.1	10.0	13.2	10.4
1966-68	9.9	14.7	15.0	22.5	16.1	25.5	15.1	14.9	13.8	13.4	12.3	14.3
1962-68	9.7	13.4	12.9	24.0	13.5	25.2	12.8	17.8	12.2	15.1	11.4	14.8
Total-Period Mean	13.2%	22.1%	14.7%	38.9%	15.2%	45.9%	13.4%	21.2%	12.4%	16.9%	11.4%	14.8%
Number of Years with Lowest Percentage	8	3	10	0	10	0	7	2	6	2	5	2

76

TABLE IV

MEAN DEVIATION OF ABSOLUTE PERCENTAGE FORECAST ERRORS: FORECAST ERROR PERIOD EQUAL TO ONE YEAR

Forecast Model Earnings Measures	S₁ NOE	S₁ NI	S₂ NOE	S₂ NI	S₃ NOE	S₃ NI	R₁ NOE	R₁ NI	R₂ NOE	R₂ NI	R₃ NOE	R₃ NI
Period												
1958	12.8%	15.2%	17.6%	63.5%	18.0%	95.4%						
1959	19.7	38.1										
1960	12.1	16.8	8.3	28.8	8.5	20.1	10.9%	21.2%	9.3%	17.4%		
1961	10.9	20.3	10.3	50.8	11.0	99.0	10.4	21.9	6.5	9.7	5.4%	13.9%
1962	5.1	15.0	4.7	29.6	4.6	28.9	6.0	21.5				
1960-62	9.4	17.4	7.8	36.4	8.0	49.3	9.1	21.5				
1963	4.9	5.6	6.6	15.4	6.4	14.4	7.5	7.7	5.6	12.2	5.8	5.6
1964	7.8	5.9	9.6	8.3	9.8	8.1	8.5	9.0	8.2	9.0	9.9	11.8
1965	8.4	6.7	8.3	11.4	8.5	10.5	8.2	7.5	8.9	7.9	8.8	9.0
1963-65	7.0	6.1	8.2	11.7	8.2	11.0	8.0	8.1	7.6	9.7	8.2	8.8
1966	10.8	9.8	13.7	19.7	13.8	24.4	12.4	13.0	11.5	10.7	11.3	10.0
1967	5.1	8.3	10.1	16.0	11.7	14.2	7.6	9.8	5.9	8.5	5.0	9.8
1968	6.1	6.6	7.3	15.2	7.6	21.2	8.6	9.0	9.0	7.1	8.5	7.9
1966-68	7.3	8.2	10.3	17.0	11.0	20.0	9.5	10.6	8.8	8.8	8.3	9.2
1962-68	6.9	8.3	8.6	16.5	8.9	17.4	8.4	11.1	7.9	9.3	7.8	9.7
Total-Period Average Mean Deviation	9.4%	13.5%	9.6%	25.9%	10.0%	33.6%	8.9%	13.4%	8.1%	10.3%	7.8%	9.7%
Number of Years with Lowest Percentage	8	3	9	1	9	1	8	1	5	3	4	3

TABLE V

NUMBER OF BANKS FOR WHICH EACH EARNINGS MEASURE PRODUCED THE LOWEST ABSOLUTE FORECAST ERROR: FORECAST-ERROR-PERIOD EQUAL TO ONE YEAR

Forecast Model Earnings Measure Period	S_1		S_2		S_3		R_1		R_2		R_3	
	NOE	NI	NOE	NI	NOE	NI	NOE	NI	NOE	NI	NOE	NI
1958	19	7										
1959	22	4	23	3	23	3						
1960	24	2	24	2	23	3	19	7				
1961	18	8	20	6	20	6	21	5	21	5		
1962	17	9	19	7	20	6	23	3	19	7	13	13
1960-62	59	19	63	15	63	15	63	15				
1963	14	12	20	6	20	6	15	11	19	7	12	14
1964	13	13	19	7	18	8	15	11	12	14	19	7
1965	20	6	15	11	15	11	17	9	22	4	15	11
1963-65	47	31	54	24	53	25	47	31	53	25	46	32
1966	12	14	13	13	13	13	8	18	8	18	13	13
1967	22	4	18	8	15	11	16	10	18	8	20	6
1968	17	9	18	8	19	7	8	18	9	17	11	15
1966-68	51	27	49	29	47	31	32	46	35	43	44	34
1962-68	115	62	122	60	120	62	102	84	107	75	103	79
Grand Totals	198	88	189	71	186	74	142	92	128	80	103	79
Grand Totals as a Percent	69%	31%	73%	27%	71%	29%	61%	39%	61%	39%	57%	43%
Number of Years with Majority	9	1	9	0	9	0	7	2	5	3	3	2

and (2) that it gives no weight to the difference between the two forecast errors being compared (i.e. - no consideration is given to the fact that a forecast error associated with a given earnings measure may be lower by .1% or 100%). As a result of the second deficiency, the final results obtained under this method could be misleading if the number of low forecast errors associated with one earnings measure are attributable to small margins while those attributable to the other measure are based upon large differences. A comparison of the annual and periodic results presented in Table V with those shown in Tables III and IV indicates that such a deficiency does not exist since, from a relative standpoint, the results presented in all three tables give rise to comparable conclusions.

Since the primary purpose of this study is to determine the relative predictive capacity of the two earnings measures and since the results presented in Table V are not biased, Table V is presented as a useful summary of the results of this study when evaluated under the short-run criterion.

5.3.2   Observations

The following observations are based upon the data presented in Tables III, IV and V and are divided into four categories: (1) overall results, (2) annual results, (3) comparison of forecast models, and (4) relationship between the rank of the means and the rank of the mean deviations.

Overall results-- On an overall basis, Net Operating Earnings showed the best predictive capacity. This statement is based on the fact that the total-period means and 1962-68 means ot Table III and the total-period average mean deviations and 1962-68 mean deviations of Table IV

were lower for forecast errors associated with Net Operating Earnings regardless of the forecast model employed. Similarly, the grand totals and the 1962-68 totals of Table V show that a majority of annual individual bank forecast errors were lowest for all forecast models when Net Operating Earnings was used to predict Net Income.

Annual results-- Although the annual results do not favor Net Operating Earnings over Net Income as overwhelmingly as do the overall results, Net Operating Earnings still showed the best predictive capacity on an annual basis. This observation is based upon a review of the annual forecast errors for each model and is supported by the data presented on the bottom line of Tables III, IV and V. For Tables III and IV, the bottom line indicates the number of forecast years for a given forecast model for which each of the two earnings measures produced the lowest mean absolute percentage forecast error and mean deviation, respectively. For Table V, the bottom line indicates the number of forecast years for a given model for which each earnings measure was associated with the majority of banks having the lowest absolute forecast error. The bottom line of the three tables also reveals that the annual superiority of Net Operating Earnings was less for the forecast models employing the longer base periods (i.e., R_1, R_2, and R_3) than for those employing the shorter base period(s) (i.e., S_1, S_2 and S_3).

Comparison of forecast models-- Model S_1 was superior to the other forecast models in terms of the size and variation of forecast errors. This statement is based solely on a comparison of the 1963-65, 1966-68, and 1962-68 aggregate data of Tables III and IV. The data for periods prior to 1962 were ignored because in order to make a meaningful comparison between forecast models it was necessary to include only those forecast

periods covered by all models. The mean absolute percentage forecast errors for the 1963-65 and the 1962-68 periods and the average mean deviations for the 1963-65, 1966-68 and 1962-68 periods were less for model S_1 than for any of the other forecast models. Only the mean absolute percentage forecast errors for models R_2 and R_3 for the 1966-68 period were lower than those of model S_1 for the periods compared.

Rank relationship between means and mean deviations-- The annual mean absolute percentage forecast error gave almost as good an indication of the relative reliability[2] of the predictive capacity of the two earnings measures by itself as it did when used in conjunction with the annual mean deviation of the absolute percentage forecast errors. The basis for this statement rests on a comparison of the ranks of the mean absolute percentage forecast errors and the mean deviations for all the annual forecast periods contained in Tables III and IV. For forty-six of the fifty-five[3] annual periods, the earnings measure with the lowest mean in Table III was the same as the earnings measure with the lowest mean deviation in Table IV. Furthermore, in six of the nine remaining periods the difference between the earnings measure with the highest mean deviation and the one with the lowest mean deviation was less than one percent.

5.4   Results Analyzed According to the Long-Run Criterion

5.4.1   Aggregation Procedures

Whereas the absolute value of FE_{ij} - the percentage forecast

---

[2]Where reliability is determined by considering both the size and the variation of the annual forecast errors.

[3]Fifty-five equals the sum of the annual forecast periods covered by each forecast model, i.e. eleven years for model S_1 plus ten years for S_2 etc.

error for bank i in <u>forecast year j</u> - served as the basic measure for evaluating the performance of the two earnings measures under the short-run criterion, the absolute value of FE_{ik} - the percentage forecast error for bank i in <u>time period k</u> - was used as the basic measure for evaluating the relative predictive capacity of the two earnings measures under each of six separate forecast-error-periods associated with the long-run criterion. FE_{ik} was calculated according to the following formula:

$$FE_{ik} = \frac{\sum\limits_{j=1}^{h} (F_{ij} - A_{ij})}{\sum\limits_{j=1}^{h} (A_{ij})}$$

where: h = 2, 3, 4, 5, 6 or 7, the number of annual
forecasts included in the forecast-error-period

   F_{ij} = forecast earnings for bank i in the jth year
of time period k

   A_{ij} = actual Net Income for bank i in the jth year
of time period k

The length of a forecast-error-period varied from two to seven years depending upon the number of annual forecast errors algebraically aggregated in arriving at the percentage forecast error for a given bank in a given time period. For example, when the forecast-error-period was three years, the percentage forecast error was calculated by averaging the algebraic amount of each of three consecutive annual dollar forecast errors for a given bank and dividing by the total actual earnings of that bank for the three-year period. By varying the length of the forecast-error-period it was possible, of course, to vary the number of years included in the "long-run". By aggregating the algebraic amount of the annual dollar forecast errors and dividing by the actual earnings for the

number of years included in the forecast-error-period, it was possible

to obtain a measure of the cumulative forecast error for a time span

as long as the forecast-error-period. The length of the forecast-error-

period was limited to no more than seven years because seven years was

the longest forecast-error-period that was common to all six forecast

models.

The number of time periods covered by the forecast models varied

according to the length of the forecast-error-period and the number of

base years employed by the forecast model. For example, there were

three time periods covered by forecast model R_2 when the forecast-error-

period was six years. The number of time periods covered was limited

to three because model R_2 employed four base years (starting with 1957,

58, 59 and 60) and the period covered by this research study was limited

to twelve years (1957-68). Consequently, the only time periods for

which results were available were 1961-66, 1962-67 and 1963-68. Table VI

shows the number of time periods associated with each forecast model

for each multi-year forecast-error-period.

The empirical findings aggregated under the long-run criterion

are contained in Tables X through XV of Appendix B. Each table contains

the results obtained from utilizing a forecast-error-period of a

different length. Each table shows, for the 26 banks included in the

study, the mean absolute percentage forecast error and the mean deviation

of the absolute percentage forecast errors for (1) each time period,

(2) the common number of time periods covered by all forecast models

and (3) the total number of time periods covered by each forecast model.

TABLE VI

NUMBER OF TIME PERIODS CONTAINED IN THE TOTAL PERIOD
COVERED BY EACH FORECAST MODEL FOR EACH MULTI-YEAR
FORECAST-ERROR-PERIOD

Number of Forecast Years in Forecast-Error-Period	Forecast Model					
	S_1	S_2	S_3	R_1	R_2	R_3
2	10	9	9	8	7	6
3	9	8	8	7	6	5
4	8	7	7	6	5	4
5	7	6	6	5	4	3
6	6	5	5	4	3	2
7	5	4	4	3	2	1

The mean absolute percentage forecast error for each time period $(\overline{M}_k)$ was determined according to the following formula:

$$\overline{M}_k = \frac{\sum\limits_{i=1}^{m} |FE_{ik}|}{m}$$

where: $m = 26$, the number of banks

FE_{ik} = the percentage forecast error for bank i in time period k

The mean deviation of the absolute percentage forecast errors for each time period $(\overline{MD}_k)$ was computed according to the following formula:

$$\overline{MD}_k = \frac{\sum\limits_{i=1}^{m} |AFE_{ik} - \overline{M}_k|}{m}$$

where: $m = 26$, the number of banks

$$\text{AFE}_{ik} = |\text{FE}_{ik}| \text{, the absolute percentage forecast error for bank i in time period k}$$

$$\overline{M}_k = \text{mean absolute percentage forecast error in time period k}$$

The mean absolute percentage forecast error and the average mean deviation of the absolute percentage forecast errors for the common number of time periods covered by all the forecast models and for the total number of time periods covered by each forecast model was determined by averaging the $\overline{M}_k$'s and the $\overline{MD}_k$'s, respectively, for the number of time periods in question. The common-period and total-period means and mean deviations were calculated for each of the six multi-year forecast-error-periods.

5.4.2   Observations

The following observations are based upon the data contained in Tables X through XV of Appendix B and are divided into the same four categories used in conjunction with the short-run criterion: (1) overall results, (2) annual results, (3) comparison of forecast models, and (4) relationship between the rank of the means and the rank of the mean deviations. The observations relating to each of the two-, three- and four-year forecast-error-periods (Tables X, XI and XII) are presented separately in Subsections 5.4.2a, b and c while the observations relating to the five-, six- and seven-year forecast-error-periods (Tables XIII, XIV, and XV) are presented as one group in Subsection 5.4.2d.

5.4.2a   Two-Year Forecast-Error-Period

Overall results-- Observation: Although on an overall basis, Net Operating Earnings showed the best predictive capacity, its superiority declined from what it was under the short-run criterion. Basis: Net

Operating Earnings had the lowest total-period mean for all six forecast models. However, it was superior for only three of the six common-period means and two of the six common-period average mean deviations. A comparison of the total-period means for forecast-error-periods of one year (Table III) and two years (Table X) reveals that the difference between the total-period means of the two earnings measures declined from an average (across all models) of 13.3% favoring Net Operating Earnings when the forecast-error-period was one year to an average of 2.5% favoring Net Operating Earnings when the forecast-error-period was lengthened to two years. A similar decline was noted when comparing the common-period means.

Annual results-- Observation: Neither earnings measure was superior on an annual basis. Basis: Net Operating Earnings had the lowest mean for a majority of the two-year time periods covered by each forecast model for four of the six forecast models. However, it had the lowest mean deviation for only two of the six forecast models. It is interesting to note that there appeared to be a decided trend toward Net Income as the superior predictor in the last few periods covered by each forecast model. For example, a review of the means for the last four time periods covered by each forecast model indicates that Net Income was lowest for twenty of the twenty-four total time periods (six forecast models times four time periods) whereas it was lowest for only three of the twenty-five preceding total time periods. This reversal in superiority will be commented upon in a subsequent section.

Comparison of forecast models-- Observation: Model S_1 was, from a relative standpoint, superior to the other forecast models in terms of the size and variation of forecast errors. Basis: The common-period

means and average mean deviations were lower for both earnings measures for model S_1 than for any of the other forecast models. It should be noted, however, that the common-period means and average mean deviations for both earnings measures for all forecast models were within 3.9% and 2.8% of each other, respectively.

Rank relationship between means and mean deviations-- Observation: The mean absolute percentage forecast error for each two-year time period gave almost as good an indication of the relative reliability of the predictive capacity of the two earnings measures by itself as it did when used in conjunction with the mean deviation of the absolute percentage forecast errors. Basis: A comparison of the ranks of the mean and the mean deviations for all of the two-year time periods covered indicates that the earnings measure with the lowest mean was the same as the earnings measure with the lowest mean deviation for forty-five of the forty-nine total time periods.

5.4.2b   Three-Year Forecast-Error-Period

Overall results-- Observation: Neither earnings measure could be considered distinctly superior although, when compared to the overall results when the forecast-error-period was one and two years, there appears to be a trend toward Net Income as the superior predictor. Basis: Net Income had the lowest total-period means and average mean deviations for three of the six and four of the six forecast models, respectively. An analysis of the common-period means and average mean deviations indicates that Net Income was superior for four of the six and six of the six forecast models, respectively.

Annual results-- Observation: Neither earnings measure could be considered distinctly superior. Basis: Each earnings measure had the

lowest mean for a majority of the three-year time periods covered by
each forecast model for two of the forecast models with two ties. How-
ever, Net Income did have the lowest mean deviation for four of the six
forecast models with the outcome of the other two models ending in ties.
The trend toward Net Income as the superior predictor in the latter time
periods was still existent as is shown by the fact that Net Income had
the lowest mean for eighteen of the final twenty-four total time periods
covered by all of the forecast models.

Comparison of forecast models-- Observation: Model S_1 was, from
a relative standpoint, superior to the other forecast models in terms of
the size and variation of forecast errors. Basis: The common-period
means and average mean deviations were lower for both earnings measures
for model S_1 than for any other forecast model. However, just as was the
case when the forecast-error-period was two years, it is worth noting that
the common-period means and average mean deviations for both earnings
measures for all forecast models were within 3.4% and 2.9% of each other,
respectively.

Rank relationship between means and mean deviations-- Observation:
As was the case when the forecast-error-period was one and two years, the
mean absolute percentage forecast error gave a good indication, by itself,
of the relative reliability of the predictive capacity of the two earnings
measures. Basis: A comparison of the ranks of the means and mean deviations
shows that they were the same for thirty-three of the forty-three total time
periods covered by all of the forecast models.

5.4.2c   Four-Year Forecast-Error-Period

Overall results-- Observation: Net Income showed the best predictive
capacity. Basis: Net Income had the lowest total-period means and average

mean deviations for all forecast models except model S_3 and the lowest common-period means and average mean deviations for all six forecast models.

Annual results-- Observation: Although the annual results do not favor Net Income over Net Operating Earnings as significantly as do the overall results, Net Income still showed the best predictive capacity on an annual basis. Basis: Net Income had the lowest means and lowest mean deviations for a majority of the four-year time periods covered by each forecast model for four of the six and five of the six forecast models, respectively.

Comparison of forecast models-- Observation: Models S_1 and S_2 are superior, from a relative standpoint, to the other forecast models in terms of the size and variation of forecast errors. Basis: Model S_1 had the lowest common-period mean for Net Operating Earnings and the lowest common-period average mean deviation for Net Income. Model S_2 had the lowest common-period mean for Net Income and was tied with model S_1 for the lowest common-period average mean deviation for Net Operating Earnings. Once again, however, it is worth noting that the common-period means and average mean deviations for both earnings measures for all forecast models were within 3.3% of each other.

Rank relationship between means and mean deviations-- Observation: The mean absolute percentage forecast error continued to give a good indication, by itself, of the relative reliability of the predictive capacity of the two earnings measures. Basis: A comparison of the ranks of the means and mean deviations reveals that they were the same for twenty-eight of the thirty-seven total time periods covered by all of the forecast models.

5.4.2d   Five-, Six-, and Seven-Year Forecast-Error-Periods

Overall results-- Observation: Net Income showed the best predictive

capacity. Basis: Net Income had the lowest total-period means and average

mean deviations over all three forecast-error-periods for all forecast

models except model S_3. Net Income also had the lowest common-period means

and average mean deviations over all three forecast-error-periods for all

six forecast models with one exception. The lone exception was model S_1

when the forecast-error-period was six years where the common-period mean

for Net Operating Earnings was lower than for Net Income.

Annual results-- Observation: Net Income showed the best predictive

capacity. Basis: Net Income had the lowest means and mean deviations for

a majority of the time periods covered by each forecast model for all

forecast models except model S_3 over all three forecast-error-periods.

Comparison of forecast models-- Observation: No one forecast

model is superior to the others. Basis: Model S_1 had the lowest common-

period means and average mean deviations for forecast errors related to

Net Operating Earnings for all forecast models for all three multi-year

forecast-error-periods. However, with the exception of models S_3 and R_1,

all of the forecast models had the distinction of at least sharing the

lowest common-period mean or average mean deviation for forecast errors

related to Net Income for one or more of the three multi-year forecast-

error-periods. The latter outcome is indicative of the fact that,

excluding the results of model S_3, the common-period means and average

mean deviations for forecast errors related to Net Income are within 3.4%

and 1.8% of each other, respectively, for all forecast models for all of

the three forecast-error-periods.

Rank relationship between means and mean deviations-- Observation:

The mean absolute percentage forecast error continued to give a good

indication, by itself, of the reliability of the relative predictive

capacity of the two earnings measures. Basis: The ranks of the means

and mean deviations were the same for at least 80% of the total time

periods covered by all of the forecast models for each of the three

forecast-error-periods.

5.5   A Plausible Explanation of One Trend in the Forecast Errors

The purpose of this section is to present a plausible explanation

for the occurrence of one of two trends that are observable in the data

contained in the tables presented in the preceding two sections. Both of

these trends indicate a switch from Net Operating Earnings to Net Income

as the superior predictor. The first appears as a trend across the single

and multi-year forecast-error-periods while the second appears as a trend

within the total time periods covered by each of three multi-year forecast-

error-periods. The first or across-period trend away from Net Operating

Earnings toward Net Income occurs as the forecast-error-period is lengthened.

Further discussion of this trend is deferred until Chapter VI. The second

or within-period trend away from Net Operating Earnings toward Net Income

occurs in the last few time periods covered by each of the first three

multi-year forecast-error-periods. This trend was most observable when

the forecast-error-period was two years (Table X) and to a lesser extent

when it was three and four years (Tables XI and XII).

A plausible explanation of why the within-period trend occurred

can be found in a comparison of the security gains and losses incurred in

the last five years (1964-68) covered by this study with those incurred in

the preceding five years (1959-63). A review of the security gains or

losses incurred by all of the 26 banks included in this study shows for

the 1964-68 period that 97 out of a possible 130 total bank-years (26

banks x 5 years) were years in which security losses were incurred

whereas for the 1959-63 period only 53 out of 130 total bank-years were

loss years.

Given the above analysis, it may be argued that the shift from a

less consistent incurrence of gains (77 out of 130) to a more consistent

incurrence of losses (97 out of 130) may well have caused the shift

toward Net Income as the superior predictor. This argument is based

upon the following logic. Referring to the graph in Figure 4 on page 54

of Chapter IV and letting z refer to Net Operating Earnings and y to Net

Income it can be argued that when security losses become consistent over

some long-run period the dispersion of Net Income (y) can be expected

to become smaller and the bias (b) of Net Operating Earnings (z) larger.

The dispersion of Net Income can be expected to become smaller because

the fluctuations in Net Income over time will be less due to the consistent

incurrence of security losses. The bias will become larger due to the

fact that the difference between Net Income and Net Operating Earnings

will be larger since there are no security gains to offset the losses.

At some point, as the dispersion of Net Income is reduced and the bias

of Net Operating Earnings increased, the superior efficiency (i.e., lower

dispersion) of Net Operating Earnings, if any, will no longer be sufficient

to overcome its biasedness. At that point, Net Income would become a better

predictor.

Such a point seems to have occurred during the latter time periods

covered by the first three multi-year forecast-error-periods. Apparently,

however, there was not as great an increase in the efficiency of Net Income

or the bias of Net Operating Earnings when the forecast-error-period was

one year (i.e. - the short-run). For, although Table III shows that Net Income has the lowest mean absolute percentage forecast errors for some forecast models for some forecast years after 1963, no apparent trend is observable in the annual forecast errors.

5.6   Summary

The purpose of this chapter was to present the empirical findings of this research study. In order to do so, however, it was first necessary to specify (1) the criteria used in evaluating and (2) the procedures used in aggregating the forecast errors. Both a short-run and a long-run evaluation criterion were established. Under both criteria, the earnings measure associated with the lowest absolute percentage forecast error for a given time period was designated as having the superior predictive capacity. The two criteria differed in that for the short-run criterion a forecast-error-period was specified as being one year in length whereas for the long-run criterion it was allowed to vary from two to seven years.

Three different aggregation procedures were utilized in applying the evaluation criteria. The mean absolute percentage forecast error and the mean deviation of the absolute percentage forecast errors were used in applying both the short-run and long-run criteria. These two aggregation procedures were considered to be the most accurate means of determining, on the average, the relative predictive capacity of the two earnings measures. The third aggregation procedure consisted of tabulating for each time period or combination of time periods the number of banks for which each earnings measure produced the lowest absolute percentage forecast error. Such an aggregation procedure was considered somewhat inferior to the two previously described procedures but was utilized in conjunction

TABLE VII

EARNINGS MEASURE WITH THE LOWEST TOTAL-PERIOD MEAN PERCENTAGE
FORECAST ERROR AND LOWEST TOTAL-PERIOD AVERAGE MEAN DEVIATION
FOR SELECTED FORECAST-ERROR-PERIODS

Forecast-Error-Period	Forecast Error Measure	Details in Table--	Forecast Model					
			S_1	S_2	S_3	R_1	R_2	R_3
One Year	Mean	III	NOE	NOE	NOE	NOE	NOE	NOE
	Mean Deviation	IV	NOE	NOE	NOE	NOE	NOE	NOE
Two Years	Mean	X	NOE	NOE	NOE	NOE	NOE	NOE
	Mean Deviation	X	NI	NOE	NOE	NOE	NOE	NOE
Three Years	Mean	XI	NI	NI	NOE	NI	NOE	NOE
	Mean Deviation	XI	NI	NOE	NOE	NI	NI	NI
Four Years	Mean	XII	NI	NI	NOE	NI	NI	NI
	Mean Deviation	XII	NI	NI	NOE	NI	NI	NI
Five Years	Mean	XIII	NI	NI	NOE	NI	NI	NI
	Mean Deviation	XIII	NI	NI	NOE	NI	NI	NI
Six Years	Mean	XIV	NI	NI	NOE	NI	NI	NI
	Mean Deviation	XIV	NI	NI	NOE	NI	NI	NI
Seven Years	Mean	XV	NI	NI	NOE	NI	NI	NI
	Mean Deviation	XV	NI	NI	NOE	NI	NI	NI

with the short-run criterion only, in order to aid the reader in assimilating the empirical findings of this research study.

Once the evaluation criteria and aggregation procedures were specified it was possible to present the empirical findings in a manner suitable for meaningful analysis. Accordingly, Tables III, IV, V of this chapter and Tables X through XV of Appendix B contain the results upon which the conclusions of this study will be based. In order to provide support for these conclusions, observations based upon the data included in the above mentioned tables were presented. These observations, for both the short-run and long-

TABLE VIII

EARNINGS MEASURE WITH LOWEST COMMON-PERIOD MEAN PERCENTAGE
FORECAST ERROR AND LOWEST COMMON-PERIOD AVERAGE MEAN DEVIATION
FOR SELECTED FORECAST-ERROR-PERIODS

Forecast-Error-Period	Forecast Error Measure	Details in Table--	Forecast Model					
			S_1	S_2	S_3	R_1	R_2	R_3
One Year	Mean	III	NOE	NOE	NOE	NOE	NOE	NOE
	Mean Deviation	IV	NOE	NOE	NOE	NOE	NOE	NOE
Two Years	Mean	X	NOE	NI	NOE	NI	NOE	NOE
	Mean Deviation	X	NI	NI	NI	NI	NOE	NOE
Three Years	Mean	XI	Tie	NI	NI	NI	NI	NOE
	Mean Deviation	XI	NI	NI	NI	NI	NI	NI
Four Years	Mean	XII	NI	NI	NI	NI	NI	NI
	Mean Deviation	XII	NI	NI	NI	NI	NI	NI
Five Years	Mean	XIII	NI	NI	NI	NI	NI	NI
	Mean Deviation	XIII	NI	NI	NI	NI	NI	NI
Six Years	Mean	XIV	NOE	NI	NI	NI	NI	NI
	Mean Deviation	XIV	NI	NI	NI	NI	NI	NI
Seven Years	Mean	XV	NI	NI	NI	NI	NI	NI
	Mean Deviation	XV	NI	NI	NI	NI	NI	NI

run criterion were grouped into four categories: (1) overall results, (2) annual results, (3) a comparison of the size and variation of forecast errors across all forecast models, and (4) the relationship between the rank of the mean absolute percentage forecast errors and their related mean deviations.

The latter two categories of observations were presented not because they were considered to provide necessary support for drawing conclusions about the relative predictive capacity of the two earnings measures, but because they were considered to be useful by-products of this research effort. The observations about the overall results and annual results were,

TABLE IX

EARNINGS MEASURE WITH LOWEST TOTAL-PERIOD MEAN PERCENTAGE
FORECAST ERROR AND LOWEST TOTAL-PERIOD AVERAGE MEAN DEVIATION
FOR A MAJORITY OF FORECAST-ERROR-PERIODS COVERED BY EACH
FORECAST MODEL FOR SELECTED FORECAST-ERROR-PERIODS

Forecast-Error-Period	Forecast Error Measure	Details in Table--	Forecast Model					
			S_1	S_2	S_3	R_1	R_2	R_3
One Year	Mean	III	NOE	NOE	NOE	NOE	NOE	NOE
	Mean Deviation	IV	NOE	NOE	NOE	NOE	NOE	NOE
Two Years	Mean	X	NOE	NOE	NOE	NI	NI	NOE
	Mean Deviation	X	NI	NOE	NOE	NI	NI	Tie
Three Years	Mean	XI	NI	NOE	Tie	NI	Tie	NOE
	Mean Deviation	XI	NI	Tie	Tie	NI	NI	NI
Four Years	Mean	XII	NI	NI	NOE	NI	NI	Tie
	Mean Deviation	XII	NI	NOE	NI	NI	NI	NI
Five Years	Mean	XIII	NI	NI	NOE	NI	NI	NI
	Mean Deviation	XIII	NI	NI	Tie	NI	NI	NI
Six Years	Mean	XIV	NI	NI	NOE	NI	NI	NI
	Mean Deviation	XIV	NI	NI	NOE	NI	NI	NI
Seven Years	Mean	XV	NI	NI	NOE	NI	NI	NI
	Mean Deviation	XV	NI	NI	NOE	NI	NI	NI

of course, presented for the primary purpose of providing a basis for determining which, if any, of the two earnings measures showed the superior predictive capacity.

The four categories of observations are summarized, in reverse order, as follows:

Rank relationship between means and mean deviations-- The mean absolute percentage forecast error gave almost as good an indication by itself of the relative reliability of the two earnings measures as it did when used in conjunction with the mean deviation.

Comparison of forecast models-- Forecast model S_1 showed a predictive capacity superior to all of the other forecast models when the length of the forecast-error-period was less than four years.

Overall results and Annual results-- The superior predictive capacity of Net Operating Earnings was superseded by Net Income as the length of the forecast-error-period increased. Because of the important role that this statement and the data upon which it was based will play in forming a basis for the conclusions that will be presented in the following chapter, Tables VII, VIII and IX are presented to reinforce the observations made in earlier sections of this chapter. Tables VII and VIII summarize the empirical findings as described by the total-period and common-period means and mean deviations. Such findings were used in making observations about the overall results. Table IX summarizes the empirical findings that were used in making observations about the annual results.

The empirical findings as presented in the tables of this chapter and Appendix B and as summarized in the observations provide the basis for the conclusions that will be presented in the following chapter.

CHAPTER VI

SUMMARY AND CONCLUSIONS

6.1   Introduction

The primary purpose of this chapter is to present the conclusions

reached as a result of this study and to discuss their implications. In

achieving this goal the chapter is divided into four major sections.

Section 6.2 contains a brief review of the purpose of this research and

the research design. Section 6.3 discusses two limitations of the study.

Section 6.4 presents the conclusions and their related implications.

Finally, Section 6.5 suggests some avenues for future research.

6.2   Review of Research Purpose and Design

The primary purpose of this research study has been ot obtain

empirical evidence that would aid in resolving the controversy that exists

between bankers and accountants over which of two different earnings

measures should be presented as the final reported earnings figures on a

bank's income statement. The two earnings measures referred to above

differ in respect to two items. Bankers favor a final reported earnings

figure, described as Net Operating Earnings, that excludes any provision

for loan losses or any security gains or losses. Accountants, on the other

hand, favor a figure, described as Net Income, that includes some provision

for loan losses and all security gains and losses.

An investigation into the nature and causes of the controversy

revealed that although there would be no controversy if it were not for

the existence of the two disputed items, it remains unresolved for reasons unrelated to the arguments presented by both sides in support of their treatment of the two items. This conclusion was reached after an analysis of the arguments presented by both sides revealed that there was logical support for both positions. Further investigation into the nature of the controversy revealed that the primary reason for its existence is the belief that investors focus almost entirely on the final reported earnings figure in evaluating the current and potential performance of a firm while largely ignoring other financial data included in the published financial statements. This penchant for focusing on a single figure is referred to as single-figure fixation. Granted the existence of the belief in single-figure fixation, it was found that a secondary reason for the controversy is a disagreement between the opposing sides as to which of the two earnings measures is the most relevant to users of publicly reported bank earnings.

Initial efforts to obtain empirical evidence that would aid in resolving the controversy were focused on attempts to perform a study to determine the validity of the belief in single-figure fixation. Such a study was not found to be feasible. Subsequent efforts were focused on performing a study to determine which of the two earnings measures was the more relevant. Such a study was found to be feasible once "the capacity to predict future earnings" was specified as a surrogate for relevance.

While the general purpose of the "predictive" study was to obtain empirical evidence that would aid in resolving the controversy, the specific purpose was to determine the relative capacity of the two earnings measures to predict future all-inclusive earnings. For, it was argued, if one earnings measure were found to have a predictive capacity superior to the other there would be new evidence for presenting the measure with the

superior predictive capacity as the final reported earnings figure on the grounds that it was more relevant. All-inclusive earnings was specified as the relevant forecast objective on the grounds that it provides the best measure of a bank's future overall performance.

Net Operating Earnings per share and Net Income per share, respectively, served as inputs to the six linear forecast models used to obtain an estimate of Net Income per share one year in the future. The resulting forecast errors served as the basis for determining the relative predictive capacity of the two earnings measures over forecast-error-periods varying from one to seven years in length.

6.3 Limitations

Prior to presenting any conclusions it would be worthwhile to point out two limitations associated with this study. The first relates to the fact, as was pointed out in Chapter IV, that the findings of any predictive study depend in part upon the particular model(s) employed. Therefore, the validity of any conclusions made as a result of the findings of this or any other predictive study are dependent upon the reader's acceptance of the reasonableness of the forecast models.

The second limitation relates to an assumption made by any study that uses historical data as a basis for making inferences about the future. The assumption, of course, is that the conditions which gave rise to past results will continue to prevail in the future. For example, as relates to this study, if Net Income were found to have had superior predictive capacities over the period covered by this study, a basic conclusion would be that in the future it should be designated the final reported earnings measure on the grounds that it is the more relevant earnings measure. Such a conclusion assumes that Net Income will continue to have superior predictive

capacities in the future. Any change in future conditions that would impair the validity of this assumption would, of course, impair the validity of the conclusion.

6.4   Conclusions and Implications

There are two basic conclusions to this study. The first or major conclusion relates to the primary objective of this research whereas the second or minor conclusion relates to the individual forecast models employed by the study.

6.4.1   Major Conclusion

As relates to the primary purpose of this study, this researcher concludes that sufficient new evidence to support the presentation of either Net Operating Earnings or Net Income as the final reported earnings figure on a bank's income statement has not been found. This conclusion is based on the fact that neither earnings measure showed a superior predictive capacity across a significant number of the forecast-error-periods specified in this study. Figures 5 through 10 illustrate this fact. Each of the figures show the trend line of the total-period mean absolute percentage forecast errors for each earnings measure for each forecast model as the forecast-error-period is increased from one to seven years. The figures show, for all forecast models, that the lowest forecast errors were associated with Net Operating Earnings when the forecast-error-period was two years or less. The figures also show for all forecast models except model S_3 that the lowest forecast errors were associated with Net Income when the forecast-error-period was four years or longer. Thus, it is concluded that the designation as to which earnings measure is the more relevant depends upon the length of the forecast-error-period deemed most
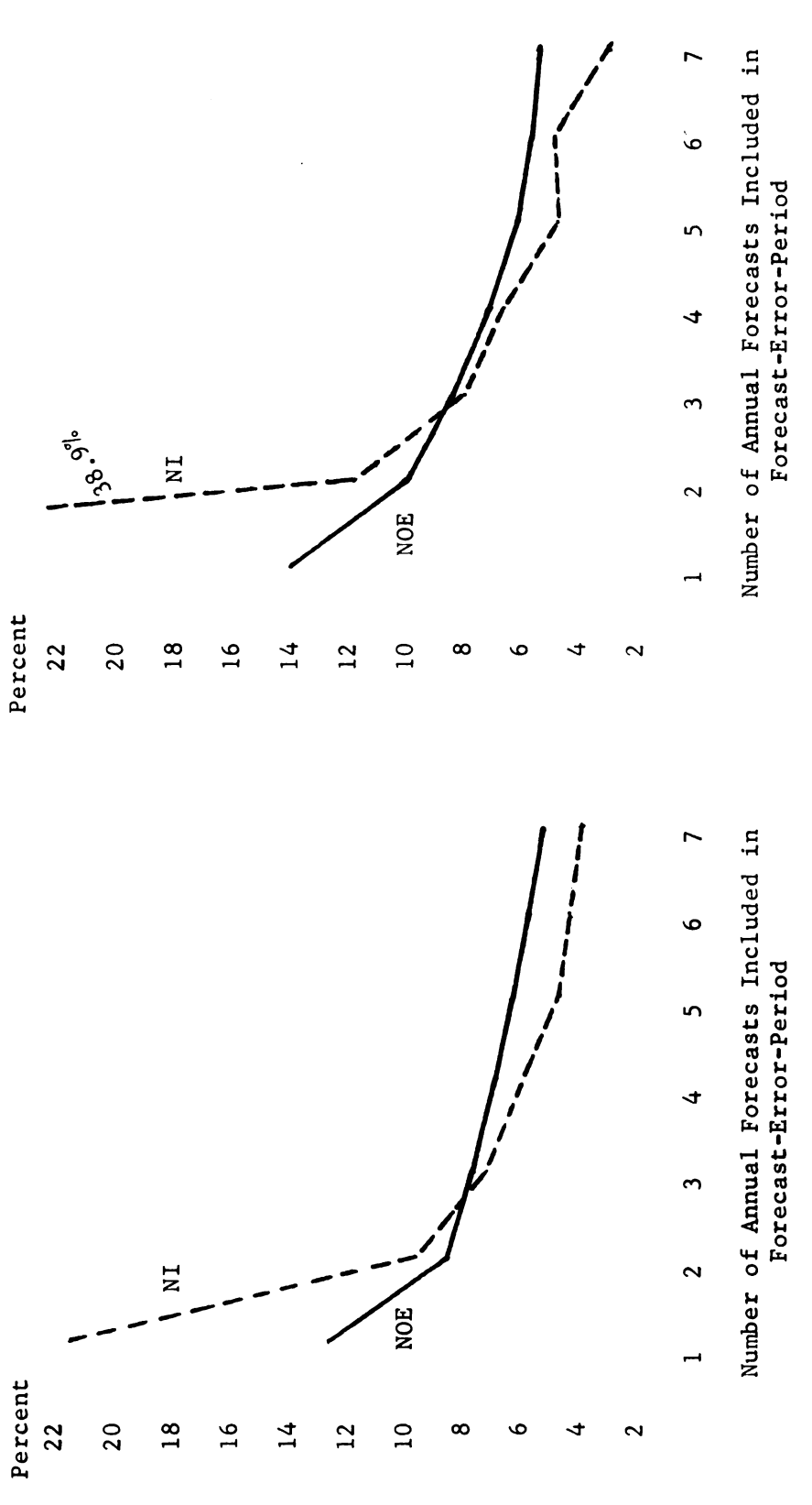
FIGURE 5

TOTAL-PERIOD MEAN ABSOLUTE PERCENTAGE
FORECAST ERRORS FOR SELECTED
FORECAST-ERROR-PERIODS: MODEL S_1

FIGURE 6

TOTAL-PERIOD MEAN ABSOLUTE PERCENTAGE
FORECAST ERRORS FOR SELECTED
FORECAST-ERROR-PERIODS: MODEL S_2
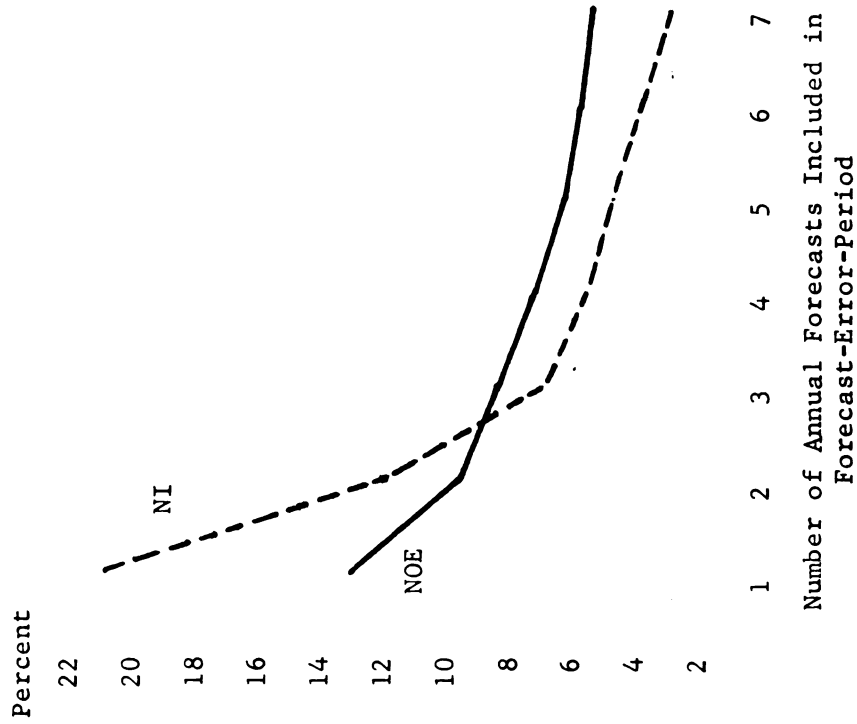
FIGURE 7

TOTAL-PERIOD MEAN ABSOLUTE PERCENTAGE
FORECAST ERRORS FOR SELECTED
FORECAST-ERROR-PERIODS: MODEL S_3
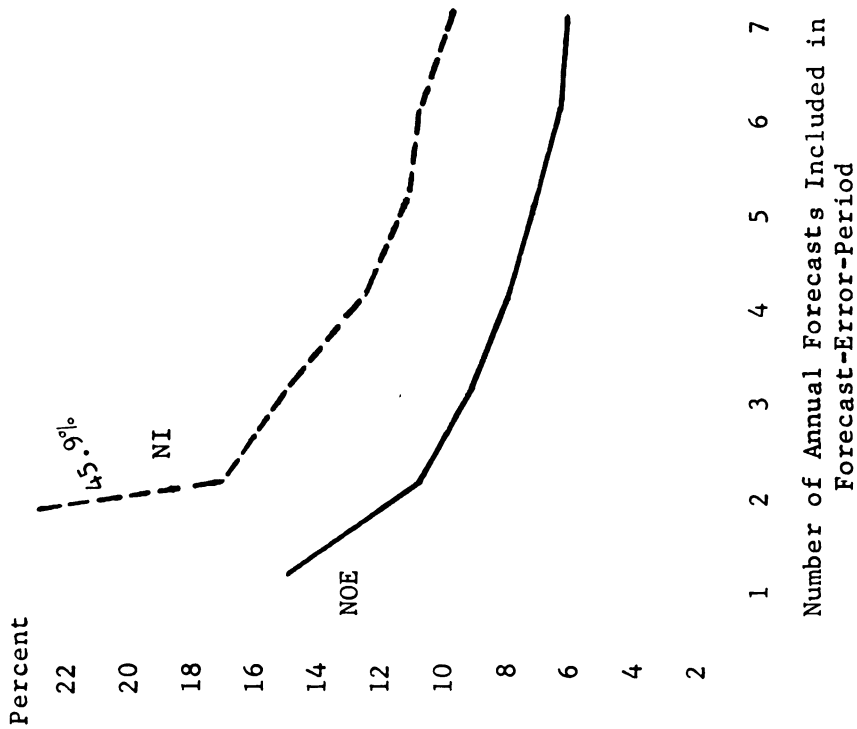
FIGURE 8

TOTAL-PERIOD MEAN ABSOLUTE PERCENTAGE
FORECAST ERRORS FOR SELECTED
FORECAST-ERROR-PERIODS: MODEL R_1
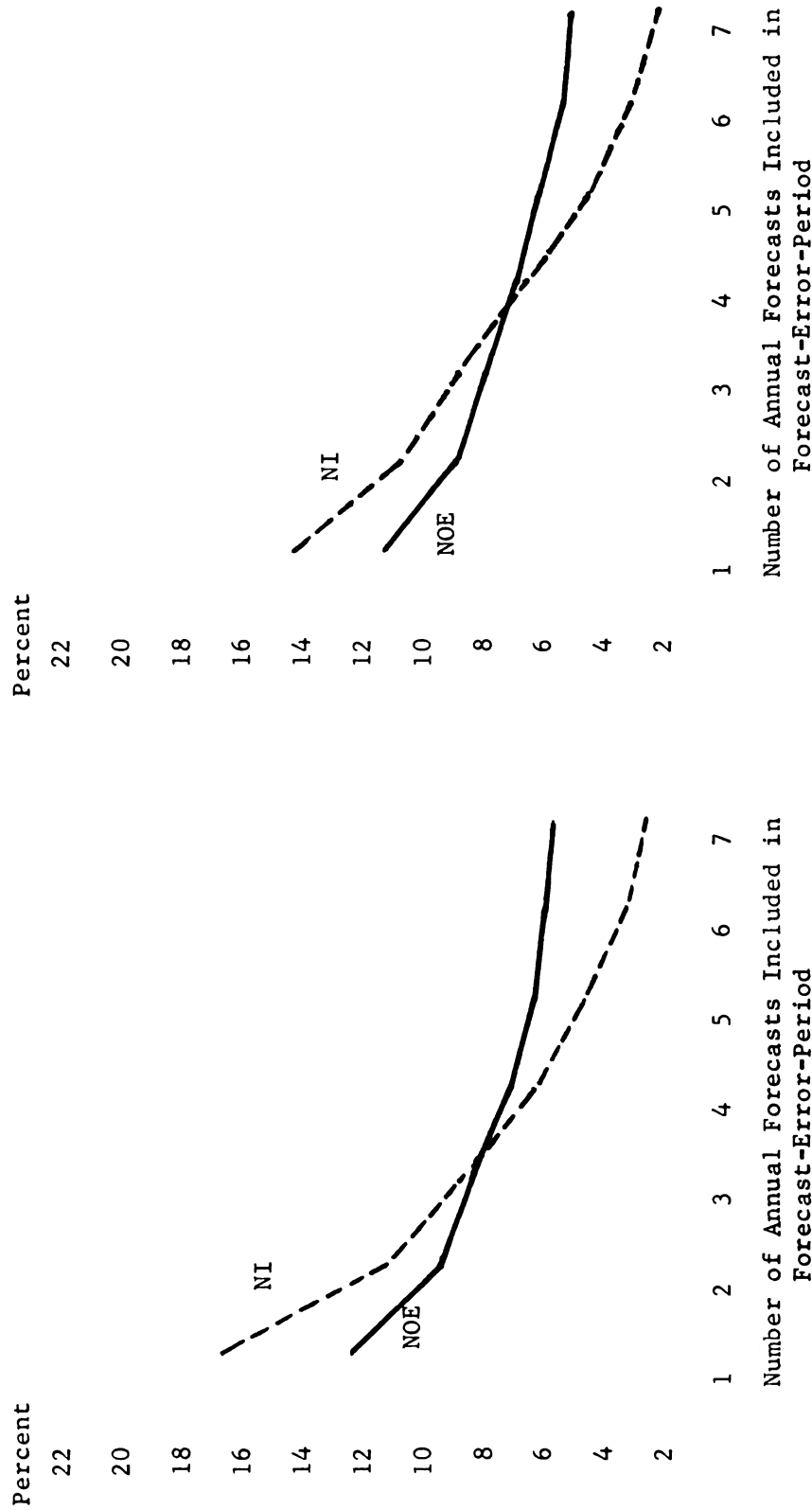
Percent

FIGURE 9

TOTAL-PERIOD MEAN ABSOLUTE PERCENTAGE
FORECAST ERRORS FOR SELECTED
FORECAST-ERROR-PERIODS: MODEL R_2

FIGURE 10

TOTAL-PERIOD MEAN ABSOLUTE PERCENTAGE
FORECAST ERRORS FOR SELECTED
FORECAST-ERROR-PERIODS: MODEL R_3

relevant to the user of a final reported earnings figure. For periods of two years or less Net Operating Earnings would receive the designation. For periods of four or more years Net Income would receive the designation.

It was noted in Section 4.2 of Chapter IV that as the forecast-error-period was lengthened Net Income would eventually, if it did not from the start, show a superior predictive capacity. This observation was based on the fact that Net Income was considered to be an unbiased predictor of Net Income whereas Net Operating Earnings was not. It was also noted that only by empirical study could it be determined when (i.e., over a forecast-error-period of what length) Net Income would show a superior predictive capacity. Figures 5 through 10 indicate for all but one of the six forecast models employed that Net Income replaced Net Operating Earnings as the superior predictor somewhere between forecast-error-periods of two and four years in length. Had the change occurred between forecast-error-periods of greater length, say six or seven years, it would have been possible to argue that Net Operating Earnings should be unequivocably designated the most relevant earnings measure on the grounds that few users of a final reported earnings figure are interested in a forecast-error-period longer than five or six years. However, this researcher has found no evidence to indicate that users of a final reported earnings figure are more interested in a forecast-error-period of one or two years than one of three, four or five years. Consequently, neither earnings measure can be unequivocably designated as being the more relevant. Such a designation depends on the length of the forecast-error-period considered to be most relevant to the user.

The major implication of this conclusion is that additional research efforts are still needed in order to find an equitable means of resolving

105

the controversy.

6.4.2 Minor Conclusion

As relates to the individual forecast models, this researcher concludes that increasing the number of base years employed in a linear forecast model does not improve the capacity of either earnings measure to predict future bank earnings. This conclusion is based on the fact that forecast model S_1, the "simplest" of the forecast models in that forecast earnings were set to equal earnings for the preceding year, was consistently superior to or as good as the five other "more sophisticated" forecast models with longer base periods.

The major implication of this conclusion is that, granting the existence of single-figure fixation and given that users of a bank's final reported earnings figure linearly extrapolate an estimate of future earnings, earnings figures contained in comparative income statements and historical summaries are of little or no incremental value to the forecaster of future bank earnings.

6.5 Suggestions for Future Research

The fact that the predictive capacity of both earnings measures was found to be relevant for forecast-error-periods of different lengths points out more than ever the need for investors to look at more than just a single figure in attempting to make inferences about the future performance of a firm. In the absence of the belief in the existence of single-figure fixation, one recommendation of this study would be that both Net Operating Earnings and Net Income be presented in both the income statement and published earnings announcements. Such a presentation has been advocated

by the AICPA since it issued APB 9.[1] However, such a recommendation
would beg the issue since the existence of the belief in single-figure
fixation was shown to be the primary reason for the existence of the
controversy. Consequently, one obvious suggestion that evolves from the
results of this study is that additional research efforts be made to
determine the validity of the belief in single-figure fixation.

In the event that such studies confirm the existence of single-
figure fixation or prove to be unfeasible or inconclusive, continued
efforts should be made to educate investors as to the importance of judging
a bank on more than just a single final reported earnings figure.

A final suggestion is that efforts continue to be directed toward
discovering and defining the needs of users of accounting information.
More specifically, as relates to this study, such efforts could be directed
toward the determination, if there is one, of the most relevant forecast-
error-period.

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[1]APB 9, p. 119.

APPENDICES

APPENDIX A

BANKS INCLUDED IN THE STUDY

(Ranked According To Asset Size)

Bank	Fortune Ranking 1968[1]	Assets[2] At 12/31/68 (000,000)
Bank of America National Trust & Savings Assn.	1	$ 23,961
First National City Bank	2	19,355
The Chase Manhattan Bank, N.A.	3	19,014
Manufacturers Hanover Trust Co.	4	10,439
Morgan Guaranty Trust Co. of New York	5	10,370
Chemical Bank	6	8,968
Bankers Trust Co.	7	7,653
Security Pacific National Bank	10	6,288
Irving Trust Co.	12	5,070
Northwest Bancorporation	*	3,955
Franklin National Bank	18	2,868
First Pennsylvania Banking and Trust Co.	20	2,507
Cleveland Trust Co.	21	2,449
Republic National Bank of Dallas	22	2,176
The Detroit Bank & Trust Co.	23	2,068
Philadelphia National Bank	24	2,065
Manufacturers National Bank of Detroit	26	1,970
Harris Trust & Savings Bank	27	1,918
Girard Trust Bank	30	1,750
First National Bank in Dallas	34	1,714
Wachovia Bank & Trust Co., N.A.	37	1,618
The Fidelity Bank	43	1,379
First Wisconsin Bankshares Corp.	*	1,338
Mercantile Trust Co., N.A.	45	1,291
First National Bank in St. Louis	*	1,092
First National Bank of Atlanta	*	946
Total Assets at December 31, 1968		$144,222

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[1]Source: "The 50 Largest Commercial Banks," Fortune, LXXIX, No. 6 (May 15, 1969), pp. 190-191.

[2]Source: Moody's Bank & Financial Manual, April, 1969.

*Not ranked by Fortune.

APPENDIX B

SUPPLEMENTARY TABLES TO CHAPTER V

TABLE X

MEAN ABSOLUTE PERCENTAGE FORECAST ERROR AND MEAN DEVIATION OF ABSOLUTE PERCENTAGE FORECAST ERRORS: FORECAST-ERROR-PERIOD EQUAL TO TWO YEARS

Forecast Model Earnings Measure	S_1		S_2		S_3		R_1		R_2		R_3	
	NOE	NI	NOE	NI	NOE	NI	NOE	NI	NOE	NI	NOE	NI
Mean												
1958-59	12.9%	11.2%	13.8%	17.9%	13.5%	28.5%						
1959-60	11.8	12.2	9.5	20.8	9.4	25.6						
1960-61	12.4	19.7	8.1	22.2	8.3	48.6	9.6%	22.5%				
1961-62	8.6	8.7	8.1	10.9	7.9	12.5	8.4	15.2	8.0%	13.2%		
1962-63	5.9	7.1	7.9	8.9	7.7	8.4	6.9	19.3	8.0	15.8	8.5%	12.1%
1963-64	7.8	5.3	9.4	7.5	9.8	7.3	9.8	8.5	9.2	11.9	8.3	11.8
1964-65	9.0	6.7	14.0	7.4	14.6	8.3	8.7	7.9	9.9	9.4	10.6	8.6
1965-66	9.2	6.7	13.7	8.9	15.2	9.6	13.1	7.4	10.9	8.8	9.8	9.6
1966-67	7.3	10.6	11.7	6.9	13.0	6.4	12.1	8.5	10.5	9.5	8.3	12.3
1967-68	5.9	12.4					11.6	8.8	10.3	10.0	9.0	11.7
Common-Period Mean	7.5	8.1	10.8	8.4	11.4	8.8	10.4	10.1	9.8	10.9	9.1	11.0
Total-Period Mean	9.1%	10.1%	10.7%	12.4%	11.0%	17.2%	10.0%	12.3%	9.5%	11.2%	9.1%	11.0%
Number of Periods with Lowest Percentage	6	4	5	4	5	4	3	5	3	4	4	2
Mean Deviation												
1958-59	8.3%	8.1%	6.0%	10.7%	6.4%	23.0%						
1959-60	7.2	8.4	4.8	11.4	4.8	20.5						
1960-61	7.6	7.5	4.7	11.2	4.6	33.4	5.8%	11.0%				
1961-62	5.0	5.5	5.0	8.1	4.9	8.9	4.6	11.3	4.5%	7.2%		
1962-63	4.8	6.2	5.5	6.9	5.6	6.8	4.4	10.9	3.8	10.1	4.6%	8.3%
1963-64	5.2	3.6	6.9	4.5	6.9	3.4	5.6	4.7	5.6	6.5	6.2	7.8
1964-65	7.3	4.0	8.0	5.1	8.1	6.1	7.8	5.5	7.5	5.8	8.0	5.7
1965-66	8.9	3.7	8.1	5.3	8.7	6.6	7.6	4.5	8.2	5.3	9.3	7.1
1966-67	5.6	3.5	6.4	5.0	7.1	4.9	6.7	5.8	6.3	5.7	6.2	5.5
1967-68	5.4	3.8					7.3	5.8	6.6	5.4	5.6	5.8
Common-Period Average Mean Deviation	6.2	4.1	6.7	5.8	6.9	6.1	6.6	6.2	6.3	6.5	6.6	6.7
Total-Period Average Mean Deviation	6.5%	5.4%	6.2%	7.6%	6.3%	12.6%	6.2%	7.4%	6.1%	6.6%	6.6%	6.7%
Number of Periods with Lowest Percentage	3	7	5	4	5	3	3	5	3	4	3	3

TABLE XI

MEAN ABSOLUTE PERCENTAGE FORECAST ERROR AND MEAN DEVIATION OF ABSOLUTE PERCENTAGE FORECAST ERRORS: FORECAST-ERROR-PERIOD EQUAL TO THREE YEARS

Forecast Model Earnings Measure	S_1 NOE	S_1 NI	S_2 NOE	S_2 NI	S_3 NOE	S_3 NI	R_1 NOE	R_1 NI	R_2 NOE	R_2 NI	R_3 NOE	R_3 NI
Mean												
1958-60	12.2%	11.0%										
1959-61	9.1	6.5	8.9%	11.4%	9.3%	36.9%						
1960-62	10.1	10.9	7.0	10.6	6.8	14.7	7.1%	7.3%				
1961-63	7.0	6.8	6.6	12.4	6.6	31.7	6.5	7.2	6.6%	9.8%		
1962-64	6.2	6.3	7.4	10.1	7.2	11.5	6.6	11.2	6.6	11.3	7.2%	12.2%
1963-65	8.1	5.8	7.0	7.8	6.9	6.7	8.4	6.5	8.9	5.8	8.8	6.7
1964-66	8.0	4.6	10.8	5.1	11.3	6.4	9.7	5.8	8.4	6.5	9.0	6.0
1965-67	6.3	10.0	11.6	8.1	12.9	6.8	9.7	7.3	8.0	9.8	6.9	11.2
1966-68	6.2	8.1	12.7	4.6	13.9	8.3	12.6	5.2	11.0	6.9	9.1	9.5
Common-Period Mean	7.0	7.0	9.9	7.2	10.4	7.9	9.4	7.2	8.6	8.1	8.2	9.1
Total-Period Mean	8.1%	7.8%	9.0%	8.8%	9.4%	15.4%	8.7%	7.2%	8.3%	8.4%	8.2%	9.1%
Number of Periods with Lowest Percentage	4	5	5	3	4	4	3	4	3	3	3	2
Mean Deviation												
1958-60	7.5%	5.8%										
1959-61	5.3	3.8	5.1%	8.2%	5.4%	29.2%						
1960-62	5.0	4.5	4.2	5.3	4.1	11.5	4.3%	3.1%				
1961-63	4.1	4.3	4.1	8.9	3.7	26.4	3.3	5.3	3.4%	7.0%		
1962-64	4.5	4.3	4.1	6.3	4.2	7.2	4.5	6.2	4.7	6.7	5.1%	7.7%
1963-65	5.2	3.1	5.5	5.1	5.7	3.7	5.2	4.3	5.7	3.8	6.1	5.0
1964-66	7.5	2.6	7.3	3.0	7.3	3.8	7.5	3.7	8.3	4.2	8.5	4.3
1965-67	5.7	2.8	6.0	4.5	6.1	3.2	5.7	4.0	5.6	4.3	5.6	5.0
1966-68	4.7	3.0	6.5	3.5	7.0	6.8	6.3	3.2	5.9	4.0	5.4	4.6
Common-Period Average Mean Deviation	5.5	3.2	5.9	4.5	6.1	4.9	5.8	4.3	6.0	4.6	6.1	5.3
Total-Period Average Mean Deviation	5.5%	3.8%	5.4%	5.6%	5.4%	11.5%	5.3%	4.3%	5.6%	5.0%	6.1%	5.3%
Number of Periods with Lowest Percentage	1	8	4	4	4	4	2	5	2	4	1	4

TABLE XII

MEAN ABSOLUTE PERCENTAGE FORECAST ERROR AND MEAN DEVIATION OF ABSOLUTE PERCENTAGE FORECAST ERRORS: FORECAST-ERROR-PERIOD EQUAL TO FOUR YEARS

Forecast Model Earnings Measure	S_1		S_2		S_3		R_1		R_2		R_3	
	NOE	NI	NOE	NI	NOE	NI	NOE	NI	NOE	NI	NOE	NI
Mean												
1958-61	11.4%	9.5%										
1959-62	7.9	4.1	7.0%	10.2%	7.4%	31.5%						
1960-63	8.7	9.0	6.1	9.0	5.8	11.0	6.2%	5.3%				
1961-64	6.5	5.1	5.9	10.1	5.9	25.2	5.8	5.9	5.9%	6.3%		
1962-65	6.7	4.7	6.5	6.2	6.4	6.5	6.7	7.3	6.7	5.9	7.0%	7.3%
1963-66	7.6	4.6	7.9	5.9	8.2	6.0	7.5	5.2	7.9	4.6	8.5	5.6
1964-67	6.1	7.4	10.4	5.7	11.4	4.9	8.1	7.0	6.6	7.9	6.5	6.0
1965-68	5.0	8.4	11.2	4.0	12.5	5.2	10.4	5.2	8.4	7.2	6.4	8.9
Common-Period Mean	6.4	6.3	9.0	5.5	9.6	5.7	8.2	6.8	7.4	6.4	7.1	7.0
Total-Period Mean	7.5%	6.6%	7.9%	7.3%	8.2%	12.9%	7.5%	6.0%	7.1%	6.4%	7.1%	7.0%
Number of Periods with Lowest Percentage	3	5	3	4	4	3	2	4	2	3	2	2
Mean Deviation												
1958-61	6.8	4.5										
1959-62	4.1	3.0	4.3%	6.4%	4.3%	19.5%						
1960-63	4.0	2.8	3.8	4.3	3.5	11.1	4.1%	3.3%				
1961-64	4.1	3.3	4.5	6.0	4.2	19.3	4.1	4.9	4.0%	4.1%		
1962-65	4.8	3.2	4.1	4.7	4.2	3.8	4.6	4.0	5.0	3.7	5.5%	5.1%
1963-66	5.9	2.6	6.3	3.9	6.4	4.7	6.4	2.9	6.7	2.9	6.9	3.8
1964-67	5.9	2.3	6.2	4.4	6.4	4.0	6.2	3.0	6.2	3.6	6.6	3.5
1965-68	4.8	2.6	5.1	2.5	5.3	3.9	5.0	3.1	5.0	3.5	4.8	4.5
Common-Period Average Mean Deviation	5.4	2.7	5.4	3.9	5.6	4.1	5.6	3.3	5.7	3.4	6.0	4.2
Total-Period Average Mean Deviation	5.1%	3.0%	4.9%	4.6%	4.9%	9.5%	5.1%	3.5%	5.4%	3.5%	6.0%	4.2%
Number of Periods with Lowest Percentage	0	8	4	3	3	4	1	5	1	4	0	4

TABLE XIII

MEAN ABSOLUTE PERCENTAGE FORECAST ERROR AND MEAN DEVIATION OF ABSOLUTE PERCENTAGE FORECAST ERRORS: FORECAST-ERROR-PERIOD EQUAL TO FIVE YEARS

Forecast Model Earnings Measure	S_1 NOE	S_1 NI	S_2 NOE	S_2 NI	S_3 NOE	S_3 NI	R_1 NOE	R_1 NI	R_2 NOE	R_2 NI	R_3 NOE	R_3 NI
Mean												
1958-62	10.0%	5.1%										
1959-63	6.4	4.0	6.0%	5.9%	6.1%	24.4%						
1960-64	7.4	6.9	5.7	6.6	5.7	9.3	6.0%	4.5%				
1961-65	6.7	4.9	5.8	5.7	5.9	17.3	5.7	4.2	6.0%	4.5%		
1962-66	6.4	3.8	6.3	5.5	6.4	8.0	6.8	6.0	7.0	4.9	7.3%	5.1%
1963-67	6.1	6.5	7.4	6.6	8.3	5.7	6.0	5.8	6.0	3.5	6.2	4.0
1964-68	5.0	6.9	10.2	2.2	11.2	4.1	9.0	5.1	6.9	6.0	6.0	5.4
Common-Period Mean	5.8	5.7	8.0	4.8	8.6	5.9	7.3	5.6	6.6	4.8	6.5	4.8
Total-Period Mean	6.9%	5.4%	6.9%	5.4%	7.3%	11.5%	6.7%	5.1%	6.5%	4.7%	6.5%	4.8%
Number of Periods with Lowest Percentage	2	5	1	5	4	2	0	5	0	4	0	3
Mean Deviation												
1958-62	6.0%	2.8%										
1959-63	4.2	2.2	3.7%	4.6%	3.7%	17.9%						
1960-64	4.0	2.5	3.6	3.5	3.4	9.2	3.9%	2.6%				
1961-65	4.0	2.6	3.5	4.6	3.6	14.5	3.9	3.4	4.1%	2.9%		
1962-66	4.8	1.9	4.9	3.3	5.0	4.6	5.1	2.7	5.4	2.7	5.8%	3.2%
1963-67	4.8	2.1	5.8	3.0	5.9	2.7	5.6	2.5	5.6	2.4	6.0	2.6
1964-68	4.9	1.5	5.1	1.8	5.2	3.0	5.3	2.5	5.3	3.4	5.3	3.2
Common-Period Average Mean Deviation	4.8	1.8	5.3	2.7	5.4	3.4	5.3	2.6	5.4	2.8	5.7	3.0
Total-Period Average Mean Deviation	4.7%	2.2%	4.4%	3.5%	4.5%	8.7%	4.8%	2.7%	5.1%	2.9%	5.7%	3.0%
Number of Periods with Lowest Percentage	0	7	2	4	3	3	0	5	0	4	0	3

TABLE XIV

MEAN ABSOLUTE PERCENTAGE FORECAST ERROR AND MEAN DEVIATION OF ABSOLUTE PERCENTAGE FORECAST ERRORS: FORECAST-ERROR-PERIOD EQUAL TO SIX YEARS

Forecast Model Earnings Measure	S_1		S_2		S_3		R_1		R_2		R_3	
	NOE	NI	NOE	NI	NOE	NI	NOE	NI	NOE	NI	NOE	NI
Mean												
1958-63	8.4%	4.7%										
1959-64	5.6	3.1	6.0%	4.9%	6.1%	21.1%						
1960-65	7.4	7.5	5.6	7.3	5.6	6.8	6.0%	4.7%				
1961-66	6.1	4.0	6.0	7.0	6.2	17.5	6.2	4.2	6.3%	3.8%		
1962-67	5.5	4.8	6.0	5.2	6.7	5.2	5.9	3.5	5.9	2.8	5.9%	2.8%
1963-68	5.0	6.1	7.9	4.2	8.8	5.1	6.7	4.4	6.0	3.2	5.6	3.9
Common-Period Mean	5.3	5.5	7.0	4.7	7.8	5.2	6.3	4.0	6.0	3.0	5.8	3.4
Total-Period Mean	6.3%	5.0%	6.3%	5.7%	6.7%	11.1%	6.2%	4.2%	6.1%	3.3%	5.8%	3.4%
Number of Periods with Lowest Percentage	2	4	2	3	3	2	0	4	0	3	0	2
Mean Deviation												
1958-63	5.9%	2.2%										
1959-64	4.1	2.0	3.3%	3.4%	3.3%	14.5%						
1960-65	3.8	2.6	3.4	3.8	3.3	6.6	3.6%	2.7%				
1961-66	4.0	1.9	4.4	4.1	4.5	12.8	4.6	3.0	4.6%	3.0%		
1962-67	4.3	2.3	4.5	4.4	4.6	3.7	4.7	2.3	5.0	1.8	5.3%	2.1%
1963-68	4.3	1.7	5.2	2.3	5.1	3.3	5.1	2.2	5.1	2.1	5.4	2.4
Common-Period Average Mean Deviation	4.3	2.0	4.9	3.4	4.9	3.5	4.9	2.3	5.1	2.0	5.4	2.3
Total-Period Average Mean Deviation	4.4%	2.1%	4.2%	3.6%	4.2%	8.2%	4.5%	2.6%	4.9%	2.3%	5.4%	2.3%
Number of Periods with Lowest Percentage	0	6	2	3	3	2	0	4	0	3	0	2

TABLE XV

MEAN ABSOLUTE PERCENTAGE FORECAST ERRORS AND MEAN DEVIATION OF ABSOLUTE PERCENTAGE FORECAST ERRORS: FORECAST-ERROR-PERIOD EQUAL TO SEVEN YEARS

Forecast Model Earnings Measure	S1		S2		S3		R1		R2		R3	
	NOE	NI	NOE	NI	NOE	NI	NOE	NI	NOE	NI	NOE	NI
Mean												
1958-64	7.4%	3.8%	6.1%	3.5%	6.2%	15.9%	5.7%	3.5%	5.5%	3.2%	5.6%	2.4%
1959-65	6.0	3.4	5.5	4.9	5.7	7.4	5.7	3.4	6.3	2.3		
1960-66	6.3	6.0	6.0	3.3	6.6	11.4	6.7	2.9				
1961-67	5.4	4.6	6.6	3.4	7.4	5.1						
1962-68	4.6	4.5										
Common-Period Mean	4.6	4.5	6.6	3.4	7.4	5.1	6.7	2.9	6.3	2.3	5.6	2.4
Total-Period Mean	5.9%	4.5%	6.1%	3.8%	6.5%	10.0%	6.0%	3.3%	5.9%	2.8%	5.6%	2.4%
Number of Periods with Lowest Percentage	0	5	0	4	3	1	0	3	0	2	0	1
Mean Deviation												
1958-64	5.3%	1.6%	2.8%	2.5%	3.0%	11.6%	3.8%	2.2%	4.0%	1.7%	4.8%	1.6%
1959-65	3.9	1.9	3.8	2.7	3.8	6.7	4.0	1.7	4.6	1.6		
1960-66	3.9	2.1	4.0	2.8	4.4	10.7	4.3	2.0				
1961-67	4.0	2.2	4.3	2.1	4.3	3.4						
1962-68	3.8	1.8										
Common-Period Average Mean Deviation	3.8	1.8	4.3	2.1	4.3	3.4	4.3	2.0	4.6	1.6	4.8	1.6
Total-Period Average Mean Deviation	4.2%	1.9%	3.7%	2.5%	3.9%	8.1%	4.0%	2.0%	4.3%	1.7%	4.8%	1.6%
Number of Periods with Lowest Percentage	0	5	0	4	3	1	0	3	0	2	0	1

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