

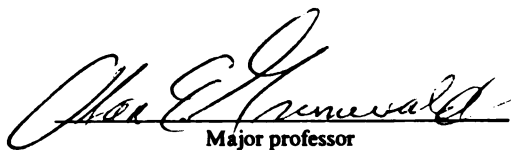
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BANK ACQUISITIONS AND STOCKHOLDER WEALTH

BY

Raymond Anthony King Cox

A DISSERTATION

**Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of**

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ABSTRACT

BANK ACQUISITIONS AND STOCKHOLDER WEALTH

By

Raymond Anthony King Cox

This dissertation examines the hypothesis that bank holding companies acquire other banks, in order to increase shareholder's wealth.

Bank mergers were identified from the Federal Register, Federal Reserve Bulletin and the Mergers and Acquisitions Journal. Monthly stock return data was gathered from several sources including the Bank and Quotation Record; Moody's Dividend Record; Standard and Poor's Dividend Record; CRSP Tapes; and Compustat Tapes.

A three-factor market model, adjusting for general stock market risk and industry risk, is employed. The three-factor market model parameters are estimated for acquirer banks during a pre-merger period. Then the estimated pre-merger parameters were extrapolated to a post-merger period. Deviations of the actual post-merger returns from the expected returns are abnormal returns attributed to the merger.

Statistical tests were conducted to assess the significance of the impact of bank mergers on average

abnormal returns. In addition, other tests on the sign, sequence and volatility of returns were administered.

Commercial bank acquisitions by bank holding companies were found to have a significant effect on stockholder returns. The stock returns were positive for the eight months starting eight months before the Federal Reserve Board merger approval date.

DEDICATION

**To the honor and glory of almighty God
in loving memory of my mother.**

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TABLE OF CONTENTS

	Page
List of Tables.....	ix
List of Figures.....	xii
CHAPTER	
1 THE PROBLEM.....	1
Introduction.....	1
Objectives of the Study.....	2
Importance of the Study.....	2
2 THEORETICAL CONSIDERATIONS.....	4
Differential Efficiency.....	4
Inefficient Management.....	5
The Agency Problem.....	5
Managerialism.....	5
Operating Synergy.....	6
Financial Synergy.....	6
Undervaluation.....	7
Market Power.....	7
Strategic Planning.....	8
Tax Factors.....	9
Accounting Rules and the Price-Earnings Ratio.....	12
Conclusions.....	13
3 LITERATURE REVIEW.....	14
Mergers and Profitability.....	14
Returns on Stock.....	15
Risk Performance.....	16
Characteristics of the Acquired Firms.....	16
Tender Offers.....	17
Market Power.....	19

CHAPTER		PAGE
3 (continued)		
	Agency Problems and Managerialism....	20
	Terms of Mergers.....	21
	Bank Studies Affecting Mergers.....	21
	Conclusions.....	26
4	LAW REVIEW.....	27
	Introduction.....	27
	History of Mergers.....	28
	Overview of the Regulators.....	29
	Office of the Comptroller of the Currency.....	29
	Federal Reserve Board.....	30
	Federal Deposit Insurance Corporation.....	33
	Securities Exchange Commission.....	35
	Federal Statutes Governing Acquisitions of Commercial Banks...	35
	The Clayton Act.....	35
	The McFadden Act.....	39
	The Securities Act.....	39
	The Securities Exchange Act.....	40
	The Bank Holding Company Act.....	41
	The Bank Merger Act.....	44
	The Change in Bank Control Act.....	45
	The National Bank Act.....	47
	Scope of State Legal and Regulatory Framework.....	49
	Application of the Law--Some Case Histories.....	60
	Conclusions.....	67
5	RESEARCH DESIGN AND HYPOTHESIS.....	69
	Sample and Data.....	69
	Methodology and Hypothesis.....	74
	Statistical Tests of Hypothesis.....	80
	Average Abnormal Return Test by Bank.....	80
	Positive Abnormal Returns by Bank Test.....	81
	Average Abnormal Return by Time Test.....	81
	Standardized Average Abnormal Return by Time Test.....	81
	Percent Positive of Abnormal Returns by Time Test.....	82

5 (continued)

	Percent Positive Test.....	82
	Percent Significant Test.....	83
	Nonparametric Runs Test on the Standardized Average Abnormal Return.....	83
	Nonparametric Runs Test on the Average Abnormal Return.....	84
	Volatility of Returns by Bank.....	87
6	RESULTS AND INTERPRETATION.....	90
	Average Abnormal Return Test by Bank.....	90
	Positive Abnormal Returns by Bank Test.....	96
	Compounded Abnormal Return by Bank...	96
	Average Abnormal Return by Time Test.....	104
	Standardized Average Abnormal Return by Time Test.....	107
	Abnormal Returns by Time.....	110
	Cumulative Average Residual.....	111
	Standardized Cumulative Average Residual.....	111
	Compounded Abnormal Return.....	115
	Geometric Average Abnormal Return....	115
	Sum of Abnormal Return.....	120
	Cumulative Sum of Abnormal Returns...	122
	Percent Positive of Abnormal Returns by Time Test.....	122
	Percent Positive Test of Average Abnormal Returns for the Complete Sample by Bank.....	125
	Percent Significant Test.....	127
	Runs Test.....	127
	Focus on Subperiod Results.....	130
	Subperiod Average Abnormal Return Test by Bank.....	131
	Subperiod Positive Abnormal Returns by Bank.....	136
	Subperiod Compounded Abnormal Return by Bank.....	136
	Subperiod Average Abnormal Return by Time.....	136
	Subperiod Standardized Average Abnormal Return by Time Test.....	146
	Subperiod Abnormal Returns by Time.....	149

6 (continued)

Subperiod Cumulative Average	
Residual.....	149
Subperiod Standardized Cumulative	
Average Residual.....	149
Subperiod Compounded Abnormal	
Return.....	149
Subperiod Geometric Average	
Abnormal Return.....	155
Subperiod Percent Positive of	
Abnormal Returns by Time Test.....	155
Subperiod Percent Positive Test	
of Average Abnormal Returns	
for the Complete Sample by Bank....	155
Subperiod Percent Significant	
Test.....	160
Subperiod Runs Test.....	160
Mergers by Year.....	163
Volatility of Returns by Bank.....	165
Regression Statistics.....	171
7 SUMMARY AND CONCLUSIONS.....	173
Test Period Returns.....	174
Subperiod Returns.....	175
Changes in Volatility.....	178
Impact of Merger on Stockholder	
Wealth.....	180
Suggestions for Further Research.....	180
APPENDIX A.....	182
BIBLIOGRAPHY.....	190

LIST OF TABLES

1.	Regulatory Agency Action on Bank Mergers: Approvals, Denials and Litigation Rates.....	50
2.	Federal Reserve Board Decisions on Bank Holding Companies Formations.....	55
3.	Federal Reserve Board Decisions on Bank Holding Companies Acquisitions.....	57
4.	Commercial Bank Mergers Attached by Justice Department After Regulatory Approval.....	64
5.	NASDAQ Banks & Trust Cos.....	73
6.	Dividends.....	75
7.	Average Abnormal Returns by Bank.....	91
8.	Positive Abnormal Returns by Bank.....	97
9.	Compounded Abnormal Returns by Bank.....	100
10.	Average Abnormal Return by Time.....	105
11.	Standardized Average Abnormal Return by Time.....	108
12.	Cumulative Average Abnormal Return by Time.....	112
13.	Compounded Abnormal Return by Time.....	116
14.	Geometric Average Return at Time t	118

15.	Sum of Abnormal Returns by Time.....	121
16.	Cumulative Sum of Abnormal Returns by Time.....	123
17.	Percent Positive of Abnormal Returns by Time.....	124
18.	Percent Positive Test of Average Abnormal Returns for the Complete Sample by Bank.....	126
19.	Percent Significant Test of Average Abnormal Returns for Complete Sample by Bank.....	128
20.	Nonparametric Runs Test.....	129
21.	Subperiod Average Abnormal Returns by Bank.....	132
22.	Subperiod Positive Abnormal Returns by Bank.....	137
23.	Subperiod Compounded Abnormal Returns by Bank.....	140
24.	Subperiod Average Abnormal Return by Time.....	143
25.	Subperiod Standardized Average Abnormal Return by Time.....	147
26.	Subperiod Cumulative Average Abnormal Return by Time.....	153
27.	Subperiod Compounded Abnormal Return by Time.....	154
28.	Subperiod Geometric Average Return at Time t	157
29.	Subperiod Percent Positive of Abnormal Returns by Time.....	158
30.	Subperiod Percent Positive Test of Average Abnormal Returns for the Complete Sample by Bank.....	159
31.	Subperiod Percent Significant Test of Average Abnormal Returns for Complete Sample by Bank.....	161

32.	Subperiod Nonparametric Runs Test.....	162
33.	Mergers by Year.....	164
34.	Volatility of Returns by Bank.....	166
35.	Regression Equations.....	172
36.	Summary of Results, Test Period.....	176
37.	Summary of Results, Subperiod.....	179

LIST OF FIGURES

1.	Permissible Nonbank Activities for Bank Holding Companies -- Under Section 4 (c) 8 of Regulation Y.....	34
2.	Regulatory Powers.....	36
3.	First Wisconsin Corporation, Milwaukee, Wisconsin Order Approving Acquisition of Bank.....	71
4.	Average Abnormal Return Test by Bank.....	94
5.	Compounded Abnormal Return by Bank.....	103
6.	Average Abnormal Return by Time.....	106
7.	Standardized Average Abnormal Returns by Time.....	109
8.	Cumulative Average Abnormal Return by Time.....	113
9.	Standardized Cumulative Average Abnormal Return by Time.....	114
10.	Compounded Average Abnormal Return by Time.....	117
11.	Geometric Average Returns % at Time t.....	119
12.	Subperiod Average Abnormal Return Test by Bank.....	135
13.	Subperiod Compounded Abnormal Return by Bank.....	144
14.	Subperiod Average Abnormal Return by Time.....	145
15.	Subperiod Standardized Average Abnormal Returns by Time.....	148

16.	Subperiod Cumulative Average Abnormal Return by Time.....	150
17.	Subperiod Standardized Cumulative Average Abnormal Return by Time.....	151
18.	Subperiod Compounded Abnormal Return by Time.....	152
19.	Subperiod Geometric Average Returns % at Time t.....	156
20.	Variance of Abnormal Returns by Bank, Estimation Period.....	169
21.	Variance of Abnormal Returns by Bank, Test Period.....	170

CHAPTER ONE

THE PROBLEM

I. Introduction

Mergers and acquisitions have been a part of the corporate scene in the U. S. for a long time. Why firms decide to grow through external means instead of internally has been debated for an equal length of time. A number of causes have been suggested for the phenomena of mergers and acquisitions, including tax factors; differential efficiency; inefficient management; operating synergy; financial synergy; undervaluation; strategic planning; agency problems; managerialism; market power; accounting rules; and price-earnings ratio.

Most studies to date have reviewed the conglomerate merger, and the returns of such a merger, as opposed to horizontal and vertical mergers. The fact that the latter forms of merger are less abundant, possibly because of antitrust laws, is one reason for the skewed sample selection of such studies. There has been a dearth of research exploring the returns to the stockholders of banks and bank holding companies acquiring other banks.

II. Objectives of the Study

This research examines the returns to the stockholders of the acquiring bank holding company, adjusted for market risk and industry risk, accruing from the acquisition of other banks. The hypothesis that bank holding companies acquire other banks in order to maximize shareholder wealth is tested. In addition, the volatility of the acquirer's returns is investigated before and after the merger.

III. Importance of the Study

The importance of the study stems from the substantial increase in bank acquisitions in the U. S. in recent years. Also, state banking laws are beginning to be reviewed with an aim of liberalizing branching and ownership provisions allowing for interstate banking. Before present state banking laws, many of which have been in existence since the 1930s Depression, are amended, it would be prudent for legislators to become knowledgeable about some of the underlying forces driving banks to acquire other banks.

Finally, this study will "fill in a gap" in the merger literature dealing with stockholder returns when the acquiring firms are in the bank industry.

In Chapter Two the theoretical considerations propelling merger activity are examined; Chapter Three is a review of the literature on mergers; Chapter Four is a

review of the laws and regulatory system governing bank merger activity; Chapter Five describes the research design and hypothesis and limns the statistical tests used to evaluate the impact of bank mergers on stockholder wealth; Chapter Six presents the empirical results and interpretation; and finally Chapter Seven summarizes the conclusions and provides suggestions for further research.

CHAPTER TWO

THEORETICAL CONSIDERATION

Why merge? The following eleven types of theories have been proposed as a basis for mergers: (1) Differential Efficiency, (2) Inefficient Management, (3) The Agency Problem, (4) Managerialism, (5) Operating Synergy, (6) Financial Synergy, (7) Undervaluation, (8) Market Power, (9) Strategic Planning, (10) Tax Factors, and (11) Accounting Rules and the Price-Earnings Ratio.

I. Differential Efficiency

This theory states that if the management of Firm One is more efficient than the efficiency of Firm Two and if after Firm One acquires Firm Two, the level of efficiency of Firm Two is raised to the level of efficiency of Firm One, efficiency is increased by merger. This provides the potential for gain. Unfortunately, the acquiring firm may not be able to raise the acquired firm's level of efficiency high enough to justify the price paid for the purchase. And, many participants in the acquisition market may bid up the prices of potential "acquiree" firms eliminating the opportunity to profit from the gain.

II. Inefficient Management

This theory is a variation of the Differential Efficiency Theory. Here the inefficient management is either not realizing its potential or just plain inept. The potential acquiring firm is not necessarily a superior management in the particular line of business. The inefficient management theory is thought to explain unrelated (conglomerate) mergers whereas the differential efficiency theory is the basis for horizontal mergers.

III. The Agency Problem

The agency problem (Jensen and Meckling [1976]) arises when managers own only a small (or none) proportion of the shares of the firm. This causes the managers to behave contrary to the majority stockholders' interest. Management may work less vigorously, allot higher salaries and perquisites to themselves to the detriment of the majority shareholders. With widely dispersed ownership, individual shareholders do not have an incentive to expend the substantial resources to monitor the behavior of managers.

IV. Managerialism

This theory is a variant of the agency problem. The managerialism explanation states that managers have an incentive to increase the size of the firm because their compensation is positively related to the size of the firm. This theory's premise was criticized by Lewellan and

Huntsman (1970) who found that manager's compensation is significantly correlated with the firm's profit rate, not the asset size or its level of sales.

V. Operating Synergy

Synergy is the cooperative action of two firms formed into one combination. If this occurs, the value of the combined firm is greater than the sum of its parts. Operating synergy may arise due to economies of scale. This may arise from indivisibilities of such things as machines and management, etc. If economies of scale do exist in an industry, there is no reason why mergers are the only way to achieve economies of scale (versus internal growth). Not only can there be economies of scale, and scope, in horizontal integration, but also in vertical integration. Operative economies in vertical integration can be achieved through reduced costs of communication and various forms of bargaining (Williamson, 1971).

VI. Financial Synergy

Financial Synergy is where the financial costs and/or financial risk of the combined firm is lower than the weighted average of the separate firms. Financial synergy is possible by evidence of reduced flotation costs as a percentage of size of issue. Larger firms can issue larger sized security offerings. If two firms merge where their respective cash flow streams are not perfectly positive

correlated, there is a reduced probability of bankruptcy. Because of the decrease in the likelihood of bankruptcy, the expected bankruptcy costs would decline. This should increase the value of the firm.

VII. Undervaluation

Some firms are acquired because the bidder believes the target's purchase price is a bargain. Gort (1969) views the merger-acquisition decision as a straight-forward capital budgeting problem in which a firm should be acquired if the present value of the income from the firm exceeds its acquisition price. Reasons for the undervaluation may include inefficient management (the Inefficient Management Theory was mentioned previously) or asymmetric information possessed by the potential acquirer on the worth of the firm that the general market does not have.

Another aspect of undervaluation is the q-ratio. The q-ratio is the ratio of the market value of the firm's shares in relation to the replacement costs of the assets represented by these shares. Merger waves often occur when the q-ratio is substantially less than one. A bank may acquire an established bank in a market, instead of entering de novo, because it is cheaper to do so.

VIII. Market Power

When a firm has market power it is able to unduly influence the price of goods (services) in the market.

Market power arises when firms in the same market merge resulting in an increased market share of the combination. This may lead to economies of scale and/or scope. If so, then this theory is part of the Operational Synergy Theory. If the merger is between firms in different markets then there may be a diversification effect. The diversification effect desired by management may involve the Agency Problem Theory and/or the Managerialism Theory.

In the United States, firms with a high degree of market power would be subject to anti-trust litigation by the Department of Justice and/or competitors. In the banking industry, particularly because of the numerous fragmented markets, monopoly (or oligopoly) considerations play a large role in mergers and acquisitions.

IX. Strategic Planning

Some firms merge because management has developed a strategy requiring acquisition of presently operating firms. Merger takes place instead of de novo entry into a field.

There are numerous strategies that management may adopt, some requiring mergers or acquisition. For example, the acquirer may seek through acquisition management expertise, specific asset portfolios, distribution network, reputable name, financial diversification, research and marketing capabilities. Why a firm would merge to achieve their strategic plan instead of through internal development is a question unanswered. Reasons to explain this may be

that mergers/acquisitions are less risky and/or provide opportunity to accomplish the goal in less time.

X. Tax Factors

If a combined company can make more profitable use of the tax laws than the separate companies or than their stockholders, then there is a tax incentive to merge. The tax advantage could be considered a synergy. There are numerous tax advantages; a few will be mentioned. Suppose the stockholders of Firm One wish to invest in Firm Two. They could do this by:

- 1) Firm One pays out cash dividend to their stockholders who incur personal income tax. The stockholders who subsequently purchase stock in Firm Two are subject to capital gains taxation upon disposition.
- 2) The stockholders of Firm One could sell some of their shares to raise cash to invest in stock of Firm Two. The sale of stock is subject to personal tax on any realized capital gains. The sellers of Firm Two's stock may also incur capital gains tax.
- 3) The company of Firm One may acquire Firm Two. This merger may, or may not, be taxed depending upon the form of acquisition.

As indicated by the above, there is an incentive for company reinvestment versus individual stockholder reinvestment, i.e. Number 3 is a method of acquisition which reduces and/or delays the payment of taxes for the individual.

Other tax incentives are unutilized tax-loss carryovers. Profit-earning firms with high tax liabilities may be interested in acquiring firms with accumulated tax-losses, especially if they are about to expire (Internal Revenue Code, Section 381).

The Economic Recovery Act of 1981, for a short period, provided a vehicle (through a sale-leaseback agreement) to sell tax benefits arising from the investment tax credit and depreciation schedule. This opportunity was subsequently closed by threatened amendment effective retroactively. Thus, mergers and acquisitions are the only methods available to utilize these tax benefits. Another tax incentive is to substitute capital gains taxes for ordinary income taxes by acquiring a high growth firm with a low dividend payout and then disposing of it to realize capital gains.

For private firms, unjustified earnings retention may be taxed by the Internal Revenue Service. This provides an incentive to sell to another firm.

A closely held firm whose owner may soon be concerned with inheritance taxes may sell because of the uncertainty of the value that the IRS may place on the firm. Also, the

sale of the firm would provide liquidity for the payment of estate taxes.

The form of acquisition has an impact on tax liability (Internal Revenue Code, Section 368) and may explain the motivation to acquire. A stock for stock swap where Firm One exchanges its stock to the stockholders of Firm Two results in no immediate tax liability for either party. When the stockholders of Firm Two liquidate the Firm One stock acquired through the merger, then they are subject to tax on any realized capital gains.

The use of convertible debentures to acquire a company has two important tax features. The interest payments by the new company on the debentures are deductible from current taxable income, and the capital gains to the seller can be deferred until the debentures are sold or converted. Deferment of payment of capital gains taxes in effect lowers the effective rate of capital gains tax (which is already substantially lower than ordinary income tax). This form of exchange has another advantage that the tax basis of the acquisition to the acquirer is the market value of the convertible debentures, not the "old" basis (book value) of the acquired firm. Of course, if the acquisition price was less than book value, this is not an advantage. The Tax Reform Act of 1969, among other things, amended the Internal Revenue Code to reduce the advantages of using the convertible debenture exchange in mergers. "Roughly, if interest

is paid in the amount of \$5 million or more on convertible bonds, the interest is not deductible." (Steiner (1975), p. 87).

XI. Accounting Rules and the Price-Earnings Ratio

The choice of method of accounting (financial statements) for mergers may provide an artificial incentive where no economic incentive exists.

Incentive to merge because of accounting rules and the relationship between the price of common stock and its earnings per share (PE Ratio) may arise under the following circumstances:

- 1) The PE ratio of a particular firm is a stable variable that is slow to change over time. Therefore, changes in earnings per share (some-what under the control of the firm's management) affect the price of the stock.
- 2) PE ratios are related to growth in earnings per share (EPS). As the EPS growth rate increases so does the PE ratio.
- 3) When Firm One, possessing a relatively high PE ratio, acquires Firm Two, after the acquisition the market values the combination at the acquirer PE ratio.

The above circumstances were considered the major cause for a substantial proportion of mergers in the U.S. in the 1960s.

Accounting Principle Board Opinion Number 16 and 17 reduced the potential abuses of firms choosing a pooling of interest method to account for a merger versus the purchasing method. Still, a merger consummated by a common stock for common stock swap, accounted for by the pooling of interest method, for publicly traded firms may be motivated by the accounting rules and the PE Ratio Relationship.

XII. Conclusions

Most of the theories indicate that a financial benefit, not obtainable from internal expansion or de novo entry into other markets, may be realized from a merger. This is in accordance with financial theory which would suggest that management interest in pursuing the merger should be guided by consideration for shareholder wealth. To an investor observing the stock return data of a public firm, the cause or causes of the financial benefit is not clear. That is, for a specific merger, one theory or a multitude of theories may explain the source of the financial benefit which should ultimately be reflected in acquirer shareholder wealth.

The change in the total value of the firm is a measure of the value of the merger which is realized by shareholders and bondholders. Other merger participants (acquired stockholders, creditors, management) may capture some merger value as well.

CHAPTER THREE

LITERATURE REVIEW

Most studies of mergers and acquisitions use samples of non-bank firms. Many of the issues that apply to non-bank firms apply to banks and bank holding companies as well.

I. Mergers and Profitability

A number of researchers have studied both the bidders and targets of mergers with respect to their financial profitability performance. Studies by Weston and Mansinghka (1971), Melicher and Rush (1974), Boyle (1970), and Conn (1976) indicated that conglomerates perform as well, with respect to profitability, as non-conglomerates. Weston and Mansinghka (1971) suggested a diversification explanation so the conglomerates would avoid sales and profit instability, declining growth, heightened competitive environment, lagging research success in technology, and increasing risk developments in their industries. Reid (1971) extended the time period of the Weston-Mansinghka article into a bear stock market and showed the greater price decline of the conglomerates versus the industrials.

Melicher and Rush (1974) found evidence that conglomerate acquirers acquired firms with high profitability and

low leverage contrasted with non-conglomerate acquirers acquiring firms with comparable profitability and leverage. These conclusions were supported by Boyle's (1970) evidence.

II. Returns on Stock

If the reason for merger is a tax benefit, operational or financial synergy, or undervaluation then the acquiring firm's stock should reflect gains from the successful merger unless the market was able to fully anticipate the merger before it occurred.

Hogarty (1970) found that merging firms did not outperform or underperform the industry average for his sample.

Weston, Smith and Shrieves (1972) found that conglomerates outperformed mutual funds, on a risk-adjusted basis, for their sample during the 1960-69 period, Melicher and Rush (1973) compared the performance of conglomerates to non-conglomerates during the period 1966-71 and found no statistically significant differences (on a risk-adjusted basis).

Halpern (1973), discovered that merger information is available, on average, for seven months before the announcement date. The cumulative average residuals (CARs) increased from the seventh month onward. Mandelker's (1974) findings indicated that acquirers do not lose nor gain from mergers but pay a fair price for the acquired firm in a competitive market for acquisitions. Ellert (1976) found similar results; acquiring firms did have positive CARs

before the merger announcement, but both the acquirer and acquired's deviation of return was not statistically significant.

Langetieg's (1978) findings supported Mandelker (1974). Langetieg's contribution was in the use of a variety of performance indexes and matched comparisons between a control group and matched pairs.

Dodd (1980), Asquith (1983) and Asquith, Bruner and Mullins (1983) showed evidence that the acquired firm is the one that benefits (statistically significant) from mergers with positive CARs and not the acquirer firm.

III. Risk Performance

The empirical research literature is in agreement that mergers are not an efficient method for reducing risk. Levy and Sarnat (1970) suggested that, in theory, merger was a method to reduce risk. Evans and Archer (1960), Weston, Smith, Shrieves (1972), Melicher and Rush (1973), and Lev and Mandelker (1972) support the conclusion that mergers are not an efficient method to reduce risk.

IV. Characteristics of the Acquired Firms

Regardless of the form of merger, time period, and compensation package the shareholders of the acquired firm accepted in the sale of their shares to the acquirer, the acquired shareholders earned a significant high rate of return (Gort and Hogarty (1970), Lorie and Halpern (1970),

Haugen and Udell (1972), and Halpern (1973)). The reason for the above is obvious; the bidder firm pays a substantial premium to acquire the target firm (Hayes and Taussig (1967), Gort (1969), and Piper and Weiss (1974)). The premium paid has a wide range, but the minimum average is about fifteen percent.

There is a diversity of evidence regarding the profitability of acquired firms. Mandelker (1974) and Smiley (1976) found low rates of return, based on market value, versus Boyle (1970), Melicher and Rush (1974), Conn (1976) and Stevens (1973) showing average profitability, based on accounting data. Stevens (1973) used a multivariate discriminant analysis of financial information. He found that six factors explained whether a firm was acquired or not. These factors were: (1) leverage, (2) profitability, (3) activity, (4) liquidity, (5) dividend policy, and (6) price earnings (Stevens, p. 152). Evidence of PE ratio reasons for acquiring firms was found by Conn (1973) and Mead (1969).

V. Tender Offers

A tender offer is a cash and/or security (common stock, preferred stock, debt and/or other type) bid by a firm to acquire ownership in another. A legal merger follows two-thirds of successful tender offers. Dodd and Ruback (1977) analyzed a sample of unsuccessful tender offers. The market power (monopoly) theory implies that both acquirer and

acquired firms would lose (in an unsuccessful merger) because of the lost ability to gain from the monopoly that did not occur. The undervaluation theory implies that neither the acquired or acquirer firms would be affected due to unsuccessful tender offers. The managerialism theory would imply that both the acquirer and acquired firm shareholders would benefit from unsuccessful tender offers. The CARs of both the acquirer and acquired firms following the unsuccessful tender offers were zero supporting the undervaluation theory.

Kummer and Hoffmeister (1978) provided evidence that acquired firms had negative CARs up to four months before the merger offer (subsequently successful) and then the CARs turned positive. For the acquirer firms, the time period before and one month after the successful merger offer the CARs were positive.

Firth (1979) used a sample from the United Kingdom during 1972-74 and reported that acquired firms had substantial gains whereas the acquirers had no gain.

Bradley's (1980) study, for the period 1962-77, indicated a mean premium of forty-nine percent for successful tender offers, and the acquirer stockholders enjoyed a four percent excess capital gain within five trading days of the merger. For the unsuccessful tender offers, the post merger offer price of the target firm was sixty-seven percent (on

average) higher than the premerger offer price. This price level was fifteen percent (on average) higher than the rejected merger offer price. The bidder firm's post rejected offer market price was four percent less than before the merger offer stock price.

VI. Market Power

The antitrust legal challenges of mergers having significant power in their markets has been examined. McGowan (1965) found that mergers accounted for almost two-thirds of the increase in the five-hundred firm concentration ratio between 1950 and 1960, and almost three-quarters the increase in the one-hundred firm concentration ratio (p. 455-456).

Stillman (1982) found that from a sample of challenged horizontal mergers the effect on the CARs of rivals was not statistically significant. The market power theory, with this merger creating an oligopoly leading to collusion, would argue that during the merger process there would be positive CARs and when the merger was challenged negative CARs.

Eckbo (1983) used a larger sample than Stillman (1983) and found positive CARs for the rivals and participants. Once the merger was challenged, the CARs did not change. This would support the market power-collusion theory.

VII. Agency Problems and Managerialism

Agency problems and managerialism studies emphasize the role mergers and takeovers have on firms that have agency problems. Standstill agreements limit a significant shareholder from acquiring control for an extended period of time. A negotiated premium buyback is the repurchase of a significant shareholder's ownership at a premium. Both standstill agreements and negotiated premium buybacks may be part of the same agreement. These arrangements reduce the competition for acquiring firms.

The motivation for such agreements is considered to be derived from management and is an agency problem and/or inhibits efficient management.

Dann and DeAngelo (1983) studied the reaction of the stock price when a standstill agreement or negotiated buyback is announced. Dann and DeAngelo's results were significant negative stock price effect for standstill agreements, combination of both, and a negative (but not significant) price effect for negotiated buybacks. This study provides support for the agency problem and managerialism theory where management serves its own best interest, not the shareholder's interests.

Bradley and Wakeman (1983) extend the Dann-DeAngelo study researching repurchases of stock acquired by a bidder seeking a consummated merger. Their goal was to separate

the wealth transfer effect from the information effect. The information effect is negative for both the repellant firm and the bidder.

VIII. Terms of Mergers

Some studies have developed a relationship between the price of acquisition and the accounting earnings of the target firm. Larson and Gonedes (1969) developed an exchange-ratio model between the acquirer and acquired firm's common stock. The PE ratio of the combined firm will be a weighted average of the PE ratios of the acquirer and acquired when the growth rate of the combination is a weighted average of the acquirer and acquired's growth rates, and the risk of the combination's earnings is a weighted average of the earnings of the acquirer and acquired.

Conn and Nielsen (1977) provided empirical support to the Larson-Gonedes Exchange Ratio Model.

IX. Bank Studies Affecting Mergers

The above studies primarily used samples of non-bank firms. Research on mergers using samples of banks and/or bank holding companies is not abundant. The relevant studies are discussed in the following.

Johnson and Meinster (1973) (p. 61) stated that there were "three shortcomings of previously published studies of the performance of bank holding company acquisitions:

(1) sampling procedures, (2) exclusive reliance on a univariate analysis, and (3) the specification of measures of performance."

Johnson and Meinster (1975) found evidence that holding company acquisitions of banks had favorable performance for at least four years (after acquisition) using balance-sheet ratios.

Martin and Keown (1981) studied the returns of stocks formed by the incorporation of one-bank holding companies (OBHC). The formation of the OBHC does not have a significant effect on the returns of the underlying stock of the affected bank.

Piper and Weiss (1974) found that the acquisitions by the multibank holding companies were breakeven investments that did not increase their earnings per share in the year 1967. Mingo (1976) found that the only difference between multibank holding companies' asset management policies and nonholding company banks was that the former had significantly riskier assets. The theory explanation for these findings rests in the managerialism theory and agency problems.

Curry (1981) found from a sample of 1,156 holding company banks during 1969-72 that those acquired banks were typical of commercial banks, i.e. no atypical pre-acquisition characteristics.

The ubiquitous of multibank holding companies (MBHC) is evidenced by Rose and Savage (1981) who state from 1968-77 that MBHCs increased from 4.6 percent to 15.6 percent of all U.S. banks, and the increase in bank deposits in these MBHCs was from 13.2 percent to 34.6 percent. This increase was primarily (81 percent) accomplished by acquisition of existing banks rather than de novo entry.

Evidence on economies of scale suggests that bank average cost curves are U-shaped with an optimum size bank around \$75 million (see Benston et al (1981) and Clark (1984)).

Heggestad and Mingo (1977) found that a statistically significant relation exists between market concentration and prices or services in commercial banking. Second, with respect to some specific prices and services, and in the aggregate, the concentration-performance relation is curvilinear. Specifically, a given increase in concentration will have a greater impact on prices (services), the less concentrated is the market initially. Brown (1982) finds a positive, statistically significant relationship between market concentration and the difference between profit rates of the relatively large and the smaller banks in the same market areas. He also finds a positive, statistically significant relationship between profit rates and market concentration for the relatively large banks in market areas, but no concentration-profits relationship for

the smaller banks. Smirlock (1983) finds that the market share of a bank dominates the concentration ratio of its market area as a determinant of the bank's profit rate.

A consideration with all bank mergers are the applicable regulations and approval by the agencies. Fleisher (1983) states that the impact of the above on the prospective bidder depends upon (p. 50): "(1) its prospects of obtaining approval from the agency, (2) the time when approval must be obtained, (3) its ability to avoid the regulatory problem, and (4) the impact of added costs and delay on its willingness to proceed."

There has been a scarcity of event studies in the Bank Holding Company (BHC) literature on stockholder returns from mergers as evidenced by Frieder and Apilano (1982) in their BHC literature review. Lobue (1984) used the standard methodology (a Capital Asset Pricing market model is estimated and extrapolated to the merger period, deviations between predicted and actual returns are the residuals which are averaged across firms and summed over time (Cumulative Average Residual)) developed by Halpern (1973) and Mandelker (1974) in analyzing a sample of 37 banks acquired by other banks. Deficiencies in the implementation of the market model to evaluate stockholder returns was the choice of the market return and banking industry return. Both measures did not include dividend returns, only price indexes. That and the sample size of 37 seems inadequate. Lobue's tainted

results indicated positive cumulative average residuals (CARs) rising prior to the merger effective date peaking 14 months thereafter with an average rise of 35.6% in the returns to the bank holding company. Lobue also found a significant shift in the beta and did not take this into account in calculating the CARs.

Desai and Stover (1985) examined bank holding company mergers using the Compustat tapes with a small sample size of 18. Their market model only took into account the general market and did not include the bank industry effect. Their results indicated significant positive CARs.

Swary (1981) examined bank acquisitions of mortgage firms, sample size of 18 during the 1971-1976 time period, using a market model not taking into account the industry effect. He found that there was no significant difference in the CARs of the acquiring bank surrounding the announcement date of the successful mergers. Surprisingly, the results of his study on the unsuccessful merger bids, sample size of 7, were significant negative CARs to the acquiring bank.

Pettway and Trifts (1985) examined the stockholder returns of bank holding companies when acquiring failed banks. The market model used included an appropriate measure of the market return and banking industry (both included the dividend return). Instead of the traditional CAR method to measure specific-company effects they chose to

use what they call "average geometric residual return" or AGRR. AGRR takes each individual bank residual and converts it into a price relative for each time period. A geometric return series for each bank was created by multiplying successive price relatives over the test period. The results indicated negative AGRRs for the acquiring bank holding companies. This would indicate that the merger market for failed banks is very competitive. The deficiency of this study is the small sample size of 11. Also, the group is of failed banks and the conclusions may not be generalized.

X. Conclusions

The conclusions from the review of the literature are primarily two fold. First, for industrials the benefits from merger usually accrue to the acquired firm as opposed to the acquiring firm. This result may be due to the premiums offered by the bidder to induce the target firm's stockholders to sell their stock, i.e., too high of an acquired firm stock price is set. This premium bid eliminates, or at least greatly reduces, the financial benefits of the merger to the acquirer.

Second, merger studies in the bank industry are scarce. The few studies that have been published have used very small sample sizes and some have methodological flaws which make their results and conclusions suspect.

CHAPTER FOUR

LAW REVIEW

I. Introduction

Mergers and acquisitions of banks require compliance with a multitude of state and federal laws, including corporate, securities, and banking regulations. At the federal level the three regulatory bodies involved in bank's merging with another or acquiring other banks are:

1) Office of the Comptroller of the Currency, 2) Federal Reserve Board, and 3) Federal Deposit Insurance Corporation.

If either of the banks is a public corporation, the Securities Exchange Commission would be involved. When acquisitions involve a nonbank financial institution, depending on the type of institution, other regulatory bodies may be involved such as the Federal Home Loan Bank Board, Federal Savings and Loan Insurance Corporation, National Credit Union Administration and the Federal Credit Union Share Insurance Fund. The federal statutes and their amendments governing mergers and acquisitions of commercial banks include:

- 1) The Clayton Act (1914),
- 2) The McFadden Act (1927),
- 3) The Securities Act (1933),

- 4) The Securities Exchange Act (1934),
- 5) The Bank Holding Company Act (1956),
- 6) The Bank Merger Act (1966),
- 7) The Change in Bank Control Act (1978),
- and 8) The National Bank Act (1982).

Accompanying the federal laws are the appropriate state laws and regulatory commissions.

II. History of Mergers

The Sherman Act of 1890 was passed in response to predatory practices employed by businesses to reduce competition. The objective of the Sherman Act was to eliminate contracts, combinations or conspiracies in restraint of trade among the several states or foreign nations.¹ In 1904, the Supreme Court in the Northern Securities case, expanded the Sherman Act to encompass the holding company device as well as business trusts.² Often, the remedy was divestiture. Monopolization, or attempting to monopolize, was so high that much conduct unbecoming to business practice was not covered by the Sherman Act.³ Therefore, the remedial Clayton Act was passed in 1914.

¹ Austin, D.V., The Evolution of Commercial Bank Merger Antitrust Law, Business Lawyer, Vol. 36, January 1981, p. 297.

² Ibid., p. 298.

³ Ibid.

III. Overview of the Regulators

The merger of two or more banks requires the approval of one of the federal banking agencies. The Federal Reserve System has the responsibility for acting on the merger application if the bank resulting from the merger is to be a state member bank. If the resulting bank is to be a national bank, the Comptroller of the Currency has the responsibility, and if the resulting bank is to be an insured state nonmember bank, the Federal Deposit Insurance Corporation is the decision-making agency. In all cases, the responsible agency has a statutory obligation to seek reports on the competitive implications of the proposed merger from the other two agencies and from the Department of Justice.⁴

IV. Office of the Comptroller of the Currency

The Office of the Comptroller of the Currency (OCC) performs two regulatory functions:

- (1) entry-and-exit regulation and⁵
- (2) examination.

⁴ Coldwell, P.E., Regulations on Competition and Structure--Federal Reserve System, in The Bankers' Handbook, Baughn, W.H. and C.E. Walkers, (eds.), Homewood, Illinois, Dow Jones-Irwin, 1978, p. 1069.

⁵ Sinkey, Jr. J.F., Commercial Bank Financial Management, New York, New York, MacMillian Publishing Company, 1983, p. 140.

As mentioned previously, the OCC is responsible for national bank mergers and plays a part in all mergers with respect to competitive implications. Here, mergers are treated the same as acquisitions. The OCC responsibility for bank mergers of national banks does not involve bank holding company mergers. The OCC will judge merger proposals using five criteria. These criteria are:

- (1) the adequacy of capital, which is generally a subjective determination;
- (2) the capability of the proposed management;
- (3) the character and standing of the applicants themselves and their ability to guide the bank in a safe and sound manner;
- (4) the convenience and needs of the community (including the competitive environment);
- (5) a judgment whether the degree of need and support will be sufficient to permit the bank to operate⁶ at profitable levels.

V. Federal Reserve Board

As mentioned previously, the Federal Reserve System is responsible for merger applications for state member

6

Doman, M., "The Nature and Purpose of Supervisory Examinations," in The Bankers' Handbook, Baughn, W.H. and C.E. Walkers, (eds.), Homewood, Illinois, Dow Jones-Irwin, 1978, p. 1101.

banks. Bank holding companies are regulated by the Federal Reserve System. This regulation affects a substantial portion of the bank market. By 1980, multibank holding companies controlled 35 percent of deposits and one-bank holding companies controlled 41 percent.⁷ A bank holding company is defined as a company owning (or otherwise controlling) 25 percent or more of any class of voting stock of a bank.⁸ The Board analyzes the degree of anticompetitive impact against the public benefits expected to follow from approval of the acquisition. In general, the Board has been willing to approve acquisitions in markets in which the holding company was not already represented. However, the Board has looked with some disfavor upon the acquisition of the largest banks in a major market by large bank holding companies headquartered elsewhere if these acquisitions would tend to diminish competition in the state, to raise the level of concentration to an excessive degree, or to eliminate an independent bank which could otherwise form a competing holding company. The Board has also been careful in approving acquisitions for large bank holding companies when the bank to be acquired could be the

⁷
Watkins, T.G., and R.C. West, Bank Holding Companies: Development and Regulation, Economic Review, Federal Reserve Bank of Kansas City, June 1982, p. 8.

⁸
Coldwell, P.E. Regulations on Competition and Structure--Federal Reserve System, in The Bankers' Handbook, Baughn, W.H. and C.E. Walkers, (eds.), p. 1070.

vehicle for market entrance by a small bank holding company especially in states dominated by a few large banking organizations.⁹

Another policy of the Federal Reserve Board concerning holding company acquisitions has been its insistence that some degree of strength be imparted by the holding company to its banking subsidiaries. In a number of instances, the above policy has caused the Board to deny acquisition because the burdensome debt position of the holding company would require excessive dividends or upstream payments to service the debt. In situations where the holding company is already overextended, acquisitions have been denied because the strength of the entire organization must come from the subsidiary banks to the holding company rather than any contribution of the holding company to the banks.¹⁰

Similarly, the Federal Reserve Board has denied acquisitions where the lead bank or a significant unit within the organization has been in financial difficulty at the time of the proposed acquisition.¹¹

Another concern of the Federal Reserve has been the development of commonly owned chains of one bank holding companies. The substitution of a chain of one bank holding

9

Ibid.

10

Ibid., p. 1071.

11

Ibid.

companies for a single multibank holding company has the same potential anticompetitive effect found in the acquisition of single banks by the multibank companies. Similarly, the Board has become concerned about the basically unrestrained acquisition of banks and their subsequent formation into one bank holding companies by individuals who already own banks in the same banking markets.¹² See Figure 1 for a list of permissible nonbanking activities for bank holding companies.

VI. Federal Deposit Insurance Corporation

As mentioned previously, the Federal Deposit Insurance Corporation (FDIC) is the decision-making agency for mergers where the resulting bank is to be an insured state nonmember bank. The FDIC also plays a part in all mergers with respect to competitive implications. The FDIC performs four regulatory functions: (1) entry regulation, (2) examinations, (3) regulation of deposit rates, and (4) disposition of failed and failing banks.¹³ Although the FDIC does not have the de jure power to stop a merger (or acquisition) of noninsured state nonmember banks, the FDIC has the de facto power to prevent merger by denying, or withdrawing, a bank's deposit insurance.

¹²

Ibid., p. 1072.

¹³

Sinkey, Jr., J.F., Commercial Bank Financial Management, p. 134.

FIGURE 1
PERMISSIBLE NONBANKING ACTIVITIES FOR BANK HOLDING COMPANIES--UNDER SECTION 4(C)8 OF REGULATION Y
(May 1, 1982)

Activities Permitted by Regulation	Activities Permitted by Order	Activities Denied by the Board
1. Extension of credit ¹ Mortgage banking Finance companies, consumer sales and commercial Credit cards Factoring	1. Issuance and sale of travelers checks ^{1,6} 2. Buying and selling gold and silver bullion and silver coin ^{1,4} 3. Issuing money orders and general purpose variable dominated payment instru- ments ^{1,2,4} 4. Futures commission mer- chant to cover gold and silver bullion and coins ^{1,2} 5. Underwriting certain federal, state, and municipal securities ^{1,2} 6. Check verification ^{1,2,4} 7. Financial advice to consumers ^{1,2} 8. Issuance of small denomination debt instruments 9. Arranging for equity financing of real estate 10. Acting as a futures commissions merchant 11. Discount brokerage 12. Operating a distressed savings and loan association 13. Operating an Article XII investment company 14. Executing foreign banking unsolicited purchases and sales of securities 15. Engaging in commercial banking activities abroad through a limited purpose Delaware bank 16. Performing appraisal of real estate and real estate advisor and real estate brokerage on nonresidential properties 17. Operating a Pool Reserve Plan for loss reserves of banks for loans to small businesses 18. Operating a thrift institution in Rhode Island 19. Operating a guarantee savings bank in New Hampshire 20. Offering informational advice and transactional services for foreign exchange services	1. Insurance premium funding (combined sales of mutual funds and insurance) 2. Underwriting life insurance not related to credit extension 3. Real estate brokerage ¹ 4. Land development 5. Real estate syndication 6. General management consulting 7. Property management 8. Computer output microfilm service 9. Underwriting mortgage guaranty insurance ¹ 10. Operating a savings and loan association ^{1,5} 11. Operating a travel agency ^{1,2} 12. Underwriting property and casualty insurance ¹ 13. Underwriting home loan life mortgage insurance 14. Orbancor investment note issue with transactional characteristics 15. Real estate advisory services

Sources: Economic Review, Federal Reserve Bank of Atlanta, April 1983.

¹Added to list since January 1, 1975.

²Activities permissible to national banks.

³Board orders found these activities closely related to banking and denied proposed acquisitions as part of its "go slow" policy.

⁴To be decided on a case-by-case basis.

⁵Operating a thrift institution has been permitted by order in Rhode Island, California, and New Hampshire only.

⁶Subsequently permitted by regulation.

VII. Securities Exchange Commission

Banks are exempt from filing requirements with the Securities Exchange Commission (SEC).¹⁴ Bank holding companies which are public companies (more than \$1 million in common stock and have more than five hundred stockholders) or listed on a national exchange must file with the SEC. Numerous filing requirements exist, such as the 10-K, 10-Q, etc.; but the form to be filed to disclose a merger or acquisition would be the 8-K. The 8-K is a current report required to be filed within 15 days after the occurrence of a "material" event.¹⁵ The SEC regulations cannot prevent a merger or acquisition. The SEC are concerned with "full disclosure" so that investors can make informed decisions. Figure 2 illustrates the division of regulatory powers.

VIII. Federal Statutes Governing Acquisitions of Commercial Banks

A. The Clayton Act (1914)

The Clayton Act, passed in 1914, was designed to prohibit abuses outside the scope of the Sherman Act by preventing conspiracies and monopolies before they exist,

¹⁴ Skousen, K.F., An Introduction to the SEC, Cincinnati, Ohio, South-Western Publishing Co., 1983, p. 20.

¹⁵ Ibid., p. 60.

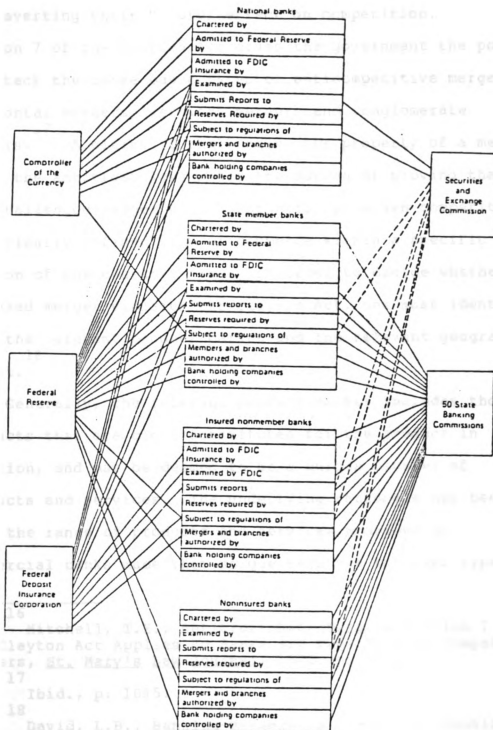


FIGURE 2 -- REGULATORY POWERS

Source: Hearings on Financial Structure and Regulation before the Subcommittee on Financial Institutions of the Senate Committee on Banking, Housing, and Urban Affairs, 93rd Congress, 1st Session, 1973.

thus averting their harmful effect on competition.¹⁶

Section 7 of the Clayton Act gives the government the power to attack the three basic types of anticompetitive mergers: horizontal mergers, vertical mergers and conglomerate

¹⁷ mergers. A plaintiff challenging the property of a merger under the antitrust laws bears the burden of proving that the challenged merger will substantially lessen competition in a clearly defined line of commerce within a specific section of the country. Thus, in order to decide whether a proposed merger violates the Clayton Act, one must identify both the relevant product market and the relevant geographic¹⁸ market.

Generally, the relevant product market includes those products that are close substitutes for the product in question, and may be deemed to be a unique cluster of products and services. The underlying rationale has been that the range of products and services provided by commercial banks made them unique relative to other types of

¹⁶ Mitchell, T.E., Antitrust-Bank Mergers-Section 7 of the Clayton Act Applies to Banks and Bank Holding Company Mergers, St. Mary's Law Journal, 1982, p. 1014.

¹⁷ Ibid., p. 1015.

¹⁸ David, L.B., Banking-Mergers-Is Commercial Banking Still a Distinct Line of Commerce, Tulane Law Review, Vol. 57, June 1983, p. 958.

depository institutions. Today, however, that rationale has
¹⁹lost much of its validity. The depository institutions
 industry consists of commercial banks, savings and loan
 associations, mutual savings banks, credit unions, bank
 holding companies, and savings and loan holding companies.²⁰
 In recent years, there have been significant changes in the
 competitive relationship between commercial banks and other
 types of depository institutions.

Evolving economic realities in the depository institu-
 tions industry, combined with recently enacted legislation,
 have eliminated many of the previous distinctions between
 commercial banks and thrift institutions. At the retail
 level, the cluster of products offered by commercial banks
 is virtually identical to that available today at most
 thrift institutions. These economic pressures and new in-
 dustry responses to the market have altered the competitive
 impact of thrift institutions in the industry. Federal
 regulatory agencies have increasingly recognized these
 changes in identifying relevant product markets. Moreover,
 recent jurisprudence indicates that federal trial courts may
 be willing to accept the concept of a unified industry-wide
 product market in analyzing proposed mergers between

¹⁹

Ibid., p. 959.

²⁰

Ibid., p. 960.

commercial banks.²¹ The consideration of all depository institutions in analyzing the competitive implications of bank mergers and acquisitions will lead to Section 7 of the Clayton Act being not applicable as a blocking agent in bank mergers and acquisition.

B. The McFadden Act (1927)

The McFadden Act, passed in 1927, was intended to establish competitive equality between national banks and state banks that were members of the Federal Reserve system by allowing national banks to branch within their municipalities to the extent permitted by the state branching laws. Historically, however, state statutes almost universally prohibited out-of-state banks from establishing branches; thus the McFadden Act operated as a bar to most interstate banking.²²

C. The Securities Act (1933)

As mentioned previously, banks are exempt from registering securities under the Securities Act of 1933, but bank holding companies are not exempt if they are a public

²¹

Ibid., p. 961.

²²

Pitts., J.T., and J.J. Cranmore, Federal Banking and Securities Laws with Respect to Bank Mergers or Takeovers, Oklahoma Law Review, Vol. 36, Fall 1983, p. 802.

company. These requirements of disclosure basically
²³
 include:

- (1) Audited financial statements,
- (2) A summary of selected financial data,
- (3) A meaningful description of an enterprise's
 business and financial condition.

The bank holding company requires the commission to
 declare the registration statement effective before the
 issuer and underwriters are free to proceed with the distri-
 bution and sale of the securities.²⁴ An important feature
 in the Securities Act of 1933 is the provision for the 20-
 day waiting period between filing and the date the registra-
 tion becomes effective.²⁵ On average it takes over 40 days
 for the review of basic registration filings.²⁶ These
 delays provide opportunities for other participants to
 thwart the merger or acquisition. Also, the delay could
 extend into a period of altered circumstances not favorable
 to the consummation of the merger or acquisition.

D. The Securities Exchange Act (1934)

As mentioned previously, banks are exempt from
 disclosure requirements of the Securities Exchange Act of

²³

Skousen, K.F., An Introduction to the SEC, p. 41.

²⁴

Ibid., p. 56.

²⁵

Ibid., p. 50.

²⁶

Ibid.

1934, but bank holding companies are not exempt if they are a public company. A number of registration and reporting requirements under this act provide information on the financial status of the bank holding companies. Again as previously stated, the Form 8-K would be required to be filed within 15 days after the occurrence of a "material" event such as a merger.

E. The Bank Holding Company Act (1956)

The Bank Holding Company Act (BHCA) of 1956 prohibits interstate bank holding company acquisitions of a bank unless that acquisition is explicitly permitted by the statute of the state.²⁷ By its terms, the BHCA only prohibits bank holding companies from having bank subsidiaries in more than one state (unless specifically authorized by state law) but does not prohibit bank holding companies from having nonbank subsidiaries in multiple states.²⁸ Therefore, the definition of bank becomes crucial for a bank holding company.²⁹

Section 3 of the BHCA requires the approval of the Federal Reserve Board before a company becomes a bank holding company, or before an existing bank holding company

²⁷

Pitts, J.T. and J.J. Cranmore, Considerations Under the Federal Banking and Securities Laws With Respect to Bank Mergers or Takeovers, p. 802.

²⁸

Ibid., p. 803.

²⁹

Ibid.

acquires more than five percent of any class of voting
securities in another bank or bank holding company.³⁰

A bank holding company or another company that seeks prior approval under the BHCA must file an application in compliance with the procedural requirements of the BHCA and the Federal Reserve Board's Regulation Y.³¹ The applicant must publish a notice of the proposed acquisition and of the public's opportunity to comment on the acquisition in a newspaper of general circulation in the community in which the main office of the bank to be acquired is located.³² The application is also forwarded to other agencies for review, although they are not required to comment on it.³³ These requirements can be time consuming. Despite BHCA's stated deadline of ninety-one days within which the Federal Reserve Board must act, it is not unusual for an approval to take six months or more.³⁴ If the Board fails to act on an application within the ninety-one day period which begins on the date of submission to the Board of the complete record

30

Helfer, M.S. and R.J. Bruemmer, Federal Banking Law Considerations in Unfriendly Takeovers of Depository Institutions, American University Law Review, Vol. 33, Winter 1984, p. 313.

31

Ibid., p. 315.

32

Ibid.

33

Ibid.

34

Ibid.

on that application, the application is deemed to have been
³⁵
 approved.

For the purpose of computing the 91-day period, the
³⁶
 record shall be regarded as complete on the latest of:

- (1) "The date of receipt by the Board of an application that has been accepted for processing by the Reserve Bank;
- (2) The last day provided in any notice for receipt of comments and notice for receipt of comments and hearing requests on the application;
- (3) The date of receipt by the Board of the last relevant material regarding the application that is needed for the Board's decision, if the material is received from a source outside of the Federal Reserve System; or
- (4) The date of completion of any hearing or other proceeding ordered by the Board."

The Federal Reserve Board reviews the application to determine whether the acquisition violates the BHCA's antitrust, financial and managerial standards. The Federal Reserve Board must reject an application that would create a monopoly, that would further an attempt to monopolize, or that would have other anticompetitive effects. If the

³⁵
 Ibid.

³⁶
 Ibid.

convenience and needs of the communities to be served advanced by the transaction outweigh the anticompetitive effects of the acquisition, however, even a transaction that would have this effect can be approved. The Board also must consider the financial and managerial resources and the future prospects of the company or companies and the banks concerned, in particular the acquirer's resulting capital ratios, the amount of debt the acquirer will incur, and the prospects of the combined organization, in order to ensure that a holding company will serve as a source of strength to its subsidiary banks.³⁷

F. The Bank Merger Act (1966)

The provisions of the Banker Merger Act (BMA) of 1966 apply to mergers, consolidations, and acquisitions of assets and assumptions of liabilities of insured commercial banks. The procedural requirements of the BMA are similar to those imposed by the Federal Reserve Board under the BHCA. The substantive standards of the BMA, including the antitrust standards,³⁸ are identical to the BHCA standards.

The BMA often is used by bank holding company subsidiaries to complete friendly acquisitions, not unfriendly acquisitions. The reasons for this will become clear. The Comptroller requires that a merger application under the BMA

³⁷
Ibid.

³⁸
Ibid.

include a copy of an executed merger agreement and a certificate from the target bank's corporate secretary that details the resolutions adopted by the target's board of directors. The Federal Reserve Board's application to acquire shares pursuant to the BHCA, in contrast, does not require any documents executed by the target. In unfriendly acquisitions, it is obviously impossible to comply with³⁹ regulations that require the target bank's cooperation.

G. The Change in Bank Control Act (1978)

The Change in Bank Control Act (CBCA) of 1978 prohibits the acquisition by any person of control of any federally insured bank, including a bank holding company, without sixty days prior written notice to the appropriate banking agency.⁴⁰ The CBCA explicitly exempts transactions that are subject to section 3 of the BMCA or section 18 of the Federal Deposit Insurance Act because they are covered by⁴¹ existing regulatory approval procedures.

Pursuant to the CBCA, a proposed acquisition may proceed if the appropriate regulatory agency does not, within sixty days, either: (1) issue a notice approving the proposed acquisition, or (2) extend for up to thirty days the

³⁹

Ibid., p. 317.

⁴⁰

Pitts, J.T. and J.J. Cranmore, Considerations Under the Federal Banking and Securities Laws With Respect to Bank Mergers or Takeovers, p. 805.

⁴¹

Ibid., p. 806.

period during which the disapproval may be issued. The CBCA requires that notices to the agency contain specific personal and biographical information, detailed five-year financial information, a description of the proposed transaction, information of any structural or managerial changes contemplated, and any other relevant information required by the agency.⁴²

The CBCA specifies certain bases for disapproval of a proposed acquisition. These factors include: "(1) potential anticompetitive factors that are not clearly outweighed in the public interest by the probable effect of the acquisition in meeting the convenience and needs of the community to be served; or (2) the financial condition of the acquiring person is such as might jeopardize the financial stability of the bank or prejudice the interest of the depositors of the bank; or (3) the competence, experience, or integrity of any acquiring person indicates that it would not be in the interest of the public to permit such person to control the bank; or (4) the acquiring person fails to furnish the appropriate federal banking agency with the requisite information."⁴³

The Comptroller has taken a position that tender-offers subject to the Securities Exchange Act (1934) may proceed

42

Ibid.

43

Ibid.

while a CBCA notice is being processed, provided steps are taken to assure that the tendering party does not acquire control of the bank prior to the Comptroller's disposition.⁴⁴

It is possible that two competing factions could file notices pursuant to the CBCA as part of an attempt to gain control of the same national bank. One would expect that if either party were to have their notice approved prior to the other, they would have a significant advantage in acquiring control of the bank.⁴⁵ In this regard, the Comptroller has stated that the Office "would probably attempt to dispose of notices simultaneously."⁴⁶ Finally, the CBCA provides that any person who willfully violates any provision of the Act or any regulation issued pursuant to the Act may be fined a penalty of not more than \$10,000 per day for each day during which such violation continues.⁴⁷

H. The National Bank Act (1982)

One objective of the National Bank Act of 1982 was to provide relief to financially troubled banking institutions

⁴⁴

Ibid., p. 808.

⁴⁵

Ibid., p. 809.

⁴⁶

Report to the Congress on the Change in Bank Control Act of 1978, Office of the Comptroller of the Currency, March 9, 1981.

⁴⁷

Pitts, J.T. and J.J. Cranmore, Considerations Under the Federal Banking and Securities Laws With Respect to Bank Mergers or Takeovers, p. 811.

by facilitating mergers and reorganization of such institutions.⁴⁸ National banks may consolidate with one or more state or national banks upon approval from the Comptroller, and with the board of directors of each bank and ratification by at least two-thirds of the shareholders of the outstanding stock of each institution. However, if a state bank is involved and state law requires ratification by greater than two-thirds of the shareholders, then the higher state ratification standard will be required for the state institution.⁴⁹

The shareholders of any of the banks involved who have voted against such consolidation or who have provided written notice of dissent from the consolidation plan shall be entitled to receive the value of the shares when such consolidation is approved by the Comptroller. The value of the shares of any dissenting shareholders are appraised as of the effective date of the consolidation by a committee of three persons.⁵⁰ Stock of a consolidated national banking association may be issued as provided by the terms of the consolidation agreement, free from any pre-emptive rights of

⁴⁸ Norton, J.J., The 1982 Banking Act and the Deregulation Scheme, The Business Lawyer, Vol. 38, August 1983, p. 1630.

⁴⁹ Pitts, J.T. and J.J. Cranmore, Considerations Under the Federal Banking and Securities Laws With Respect to Bank Mergers or Takeovers, p. 811.

⁵⁰ Ibid.

the shareholders of the respective consolidating banks.⁵¹
 Similar requirements govern mergers of national banks or
 state banks into national banks and national banks with a
 state bank in the same state.⁵² See Tables 1, 2 and 3 on
 regulatory agency action on bank mergers and Federal
 Reserve Board decisions on BHC formations and acquisitions
 respectively.

IX. Scope of State Legal and Regulatory Framework

Each state has a state banking department headed by a
 state bank commissioner or official of comparable title.
 State banking departments are the primary chartering, exam-
 ining, and regulatory bodies for state-chartered commercial
 plus mutual savings banks (similar to OCC).⁵³

Although the primary goal of each state banking depart-
 ment is directed toward each respective state, state bank
 commissioners nationwide are organized into a Conference of
 State Bank Supervisors (CSBS).⁵⁴

CSBS has two primary goals. The first is to achieve
 and maintain strong and effective state banking departments
 nationwide. The second major goal of CSBS is to achieve and

⁵¹

Ibid., p. 812.

⁵²

Ibid., p. 813.

⁵³

Krieder, L.E., Regulations on Bank Soundness,
 Competition, and Structure-State Banking Departments, in The
 Bankers Handbook, Baughn, W.H. and C.E. Walker, eds., p.
 1060.

⁵⁴

Ibid., p. 1061.

TABLE 1
REGULATORY AGENCY ACTION ON BANK MERGERS:
APPROVALS, DENIALS AND LITIGATION RATES
May 1, 1960 - December 31, 1984

	FEDERAL RESERVE BOARD						
	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>
Approvals	17	32	37	31	16	23	21
Denials	<u>3</u>	<u>5</u>	<u>5</u>	<u>3</u>	<u>2</u>	<u>0</u>	<u>1</u>
Total	20	37	42	34	18	23	22
% Denials	15.0	13.5	11.9	8.8	11.1	0	4.5

	FEDERAL DEPOSIT INSURANCE CORPORATION						
	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>
Approvals	21	31	44	31	29	47	37
Denials	<u>0</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	21	31	44	33	29	47	37
% Denials	0	0	0	6.1	0	0	0

	COMPTROLLER OF THE CURRENCY						
	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>
Approvals	56	72	111	90	91	81	85
Denials	<u>0</u>	<u>1</u>	<u>7</u>	<u>2</u>	<u>0</u>	<u>1</u>	<u>3</u>
Total	56	73	118	92	91	82	88
% Denials	0	1.4	5.9	2.2	0	1.2	3.4

	TOTAL FOR ALL AGENCIES						
	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>
Approvals	94	135	192	152	136	151	143
Denials	<u>3</u>	<u>6</u>	<u>12</u>	<u>7</u>	<u>2</u>	<u>1</u>	<u>4</u>
Total	97	141	204	159	138	152	147
% Litigations	3	4	6	4	1	1	3

TABLE 1 -- continued

	FEDERAL RESERVE BOARD						
	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
Approvals	13	14	20	29	16	19	20
Denials	<u>2</u>	<u>1</u>	<u>3</u>	<u>2</u>	<u>2</u>	<u>1</u>	<u>0</u>
Total	15	15	23	31	18	20	20
% Denials	13.3	6.7	13.0	6.5	11.1	5.0	0

	FEDERAL DEPOSIT INSURANCE CORPORATION						
	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
Approvals	38	68	79	58	60	85	96
Denials	<u>2</u>	<u>3</u>	<u>1</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>0</u>
Total	40	71	80	62	64	89	96
% Denials	5.0	4.2	1.3	6.5	6.3	4.5	0

	COMPTROLLER OF THE CURRENCY						
	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
Approvals	75	85	88	80	56	61	54
Denials	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	76	85	88	80	56	61	54
% Denials	1.3	0	0	0	0	0	0

	TOTAL FOR ALL AGENCIES						
	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
Approvals	126	167	187	167	132	165	170
Denials	<u>5</u>	<u>4</u>	<u>4</u>	<u>6</u>	<u>6</u>	<u>5</u>	<u>0</u>
Total	131	171	191	173	138	170	170
% Litigations	4	2	2	3	4	4	0

TABLE 1 -- continued

	FEDERAL RESERVE BOARD						
	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Approvals	12	9	7	4	3	7	4
Denials	<u>1</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	13	10	7	5	3	7	4
% Denials	7.7	10.0	0	20.0	0	0	0

	FEDERAL DEPOSIT INSURANCE CORPORATION						
	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Approvals	55	41	41	72	65	52	79
Denials	<u>1</u>	<u>3</u>	<u>2</u>	<u>4</u>	<u>5</u>	<u>1</u>	<u>4</u>
Total	56	44	43	76	70	53	83
% Denials	1.8	6.8	4.7	5.3	7.1	1.9	4.8

	COMPTROLLER OF THE CURRENCY						
	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Approvals	42	62	51	67	55	87	106
Denials	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	42	62	51	67	55	87	106
% Denials	0	0	0	0	0	0	0

	TOTAL FOR ALL AGENCIES						
	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Approvals	109	112	99	143	123	849	189
Denials	<u>2</u>	<u>4</u>	<u>2</u>	<u>5</u>	<u>5</u>	<u>1</u>	<u>4</u>
Total	111	116	101	148	128	850	193
% Denials	2	3	2	3	4	1	2.1

TABLE 1 -- continued

	FEDERAL RESERVE BOARD				
	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>Total</u>
Approvals	11	12	26	19	422
Denials	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>33</u>
Total	11	12	26	19	455
% Denials	0	0	0	0	7.3

	FEDERAL DEPOSIT INSURANCE CORPORATION				
	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>Total</u>
Approvals	85	133	168	n/a	1587
Denials	<u>1</u>	<u>2</u>	<u>6</u>	n/a	<u>49</u>
Total	86	135	174	n/a	1636
% Denials	1.2	1.5	3.5	n/a	3.0

	COMPTROLLER OF THE CURRENCY				
	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>Total</u>
Approvals	n/a	n/a	n/a	n/a	1555
Denials	n/a	n/a	n/a	n/a	<u>15</u>
Total	n/a	n/a	n/a	n/a	1570
% Denials	n/a	n/a	n/a	n/a	1.0

TABLE 1 -- continued

	TOTAL FOR ALL AGENCIES				
	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>Total</u>
Approvals	n/a	n/a	n/a	n/a	3564
Denials	n/a	n/a	n/a	n/a	<u>97</u>
Total	n/a	n/a	n/a	n/a	3661
% Denials	n/a	n/a	n/a	n/a	2.7

Sources: Annual Reports, Board of Governors of the Federal Reserve System; Annual Report of the Federal Deposit Insurance (1984 data not available at time of printing); Annual Report of the Comptroller of the Currency (1981 annual report was discontinued, subsequently data incomplete from Quarterly Journal, Comptroller of the Currency); The Federal Reserve Board figures do not include delegated authority decisions made by the Office of the Secretary and/or the twelve Federal Reserve Banks.

TABLE 2
FEDERAL RESERVE BOARD DECISIONS ON BANK
HOLDING COMPANIES FORMATIONS
1956 - 1984

	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>
Approvals	0	0	1	1	0	2	5
Denials	<u>0</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>2</u>
Total Action	0	0	4	1	0	2	7
% Denials	0	0	75.0	0	0	0	28.6
	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>
Approvals	2	4	2	6	10	9	21
Denials	<u>1</u>	<u>1</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>0</u>	<u>1</u>
Total Action	3	5	3	8	11	9	22
% Denials	33.3	20.0	38.3	25.0	9.1	0	4.5
	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>
Approvals	31	51	68	57	72	50	52
Denials	<u>0</u>	<u>2</u>	<u>11</u>	<u>1</u>	<u>16</u>	<u>15</u>	<u>12</u>
Total Action	31	53	79	58	88	65	64
% Denials	0	3.8	1.39	1.7	18.2	23.1	18.8

TABLE 2 -- continued

	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
Approvals	54	68	73	41	41	47	69
Denials	<u>16</u>	<u>14</u>	<u>3</u>	<u>9</u>	<u>13</u>	<u>3</u>	<u>6</u>
Total Action	70	82	76	50	54	50	75
% Denials	22.9	17.1	3.9	18.0	24.1	6.0	8.0
	<u>1984</u>	<u>Total</u>					
Approvals	69	906					
Denials	<u>4</u>	<u>137</u>					
Total Action	73	1043					
% Denials	5.5	13.1					

Source: Annual Reports, Board of Governors of the Federal Reserve System. This does not include delegated authority decisions made by the Office of the Secretary and/or the twelve Federal Reserve Banks.

TABLE 3
FEDERAL RESERVE BOARD DECISIONS ON BANK
HOLDING COMPANIES ACQUISITIONS
1956 - 1984

	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>
Approvals	1	7	4	7	13	9	16
Denials	<u>0</u>	<u>2</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>3</u>	<u>3</u>
Total Action	1	9	5	7	14	12	19
% Denials	0	22.2	20.0	0	7.1	25.0	15.8
	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>
Approvals	5	6	12	15	16	33	66
Denials	<u>3</u>	<u>0</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>3</u>
Total Action	8	6	14	17	18	35	69
% Denials	37.5	0	14.3	11.7	11.1	5.7	4.3
	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>
Approvals	113	143	248	288	177	71	82
Denials	<u>9</u>	<u>15</u>	<u>18</u>	<u>18</u>	<u>14</u>	<u>17</u>	<u>10</u>
Total Action	122	158	266	306	191	88	92
% Denials	7.4	9.5	6.8	5.9	7.3	19.3	10.9

TABLE 3 -- continued

	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
Approvals	1	77	68	91	39	26	90
Denials	<u>0</u>	<u>6</u>	<u>6</u>	<u>12</u>	<u>9</u>	<u>4</u>	<u>14</u>
Total Action	1	83	74	103	48	30	104
% Denials	0	7.2	8.1	11.7	18.8	13.3	13.5
	<u>1984</u>	<u>Total</u>					
Approvals	94	1818					
Denials	<u>7</u>	<u>183</u>					
Total Action	101	2001					
% Denials	6.9	9.2					

Source: Annual Reports, Board of Governors of the Federal Reserve System. This does not include delegated authority decisions made by the Office of the Secretary and/or the twelve Federal Reserve Banks.

maintain a banking and bank regulatory structure which has⁵⁵
adequate state/federal checks and balances. Various
states are amending their banking laws to allow at least
some interstate banking. For example, Alaska permits out-⁵⁶
of-state bank holding companies to acquire in-state banks.
Delaware permits the establishment of limited purpose,
wholesale-oriented, single-office banks by out-of-state bank⁵⁷
holding companies. Iowa effectively permits certain bank⁵⁸
holding companies to engage in interstate activities.
Maine permits bank holding company acquisitions on a recip-⁵⁹
rocal basis. Massachusetts and Connecticut permit branch
banking and bank holding company acquisitions on a recipro-⁶⁰
cal basis, but only with New England states. New York
permits bank holding company company acquisitions on a recip-⁶¹
rocal basis. South Dakota permits limited-purpose banks⁶²
to be acquired by out-of-state bank holding companies. On

55

Ibid.

56

Pitts, J.T. and J.J. Cranmore, Considerations Under the Federal Banking and Securities Laws With Respect to Bank Mergers or Takeovers, p. 805.

57

Ibid.

58

Ibid.

59

Ibid.

60

Ibid.

61

Ibid.

62

Ibid.

October 1, 1983, Oklahoma permitted commercial banks to establish branches and for multibank holding companies to conduct operations within the state.⁶³ After the Oklahoma law was passed, Kansas became the last unit-banking state in the nation.⁶⁴ As well as state bank regulation, mergers and acquisitions that involve the issue of securities must abide by the blue sky laws of the state. In Michigan, banks and one bank holding companies are exempt from registration. If a multi-bank holding company or other firm were to acquire a bank compliance with the blue sky laws would be necessary.

X. Application of the Law--Some Case Histories

On February 25, 1961, the Antitrust Division of the Department of Justice filed a civil antitrust complaint against the approved merger of the Philadelphia National Bank--Girard Corn Exchange Company. Both were located in Philadelphia, Pennsylvania. This complaint was filed one day after the Comptroller of the Currency had approved the merger, in spite of adverse competitive reports submitted to it by the Justice Department, the FDIC, and the Federal Reserve Board of Governors. This was the first commercial

⁶³

Pringle, L.N., Multibank Holding Company and Branching Law in Perspective in Oklahoma, Oklahoma Law Review, Vol. 36, Fall 1983, p. 863.

⁶⁴

Ibid., p. 864.

bank antitrust suit filed by the Department of Justice.⁶⁵
 The complaint was filed under Section 7 of the Clayton Act,
 and trial was set for the District Court Eastern Division in
 Philadelphia, Pennsylvania.⁶⁶ After the defendants won at
 the District Court level the Justice Department immediately
 appealed to the Supreme Court. On June 17, 1963, on a 6-2
 vote, with one abstention, the Supreme Court found in favor
 of the Antitrust Division; and granted a permanent injunc-
 tion against the proposed and approved merger.⁶⁷

First, the Supreme Court ruled that this acquisition
 fell within the jurisdiction of Section 7 of the Clayton
 Act.⁶⁸ Second, the Supreme Court ruled that all commercial
 bank mergers were potential targets of Section 7 action
 under the Celler-Kefauver Amendments, and the Bank Merger
 Act of 1960 lost its primary exemption status at that
 point.⁶⁹ Third, the banks alleged that since the Bank
 Merger Act of 1960 had been passed, it immunized commercial
 banks from the antitrust provisions of Sherman Act Sections
 1 and 2, and the Clayton Act, Section 7. The Supreme Court

⁶⁵ Austin, D.V., The Evolution of Commercial Bank Merger
 Antitrust Law, p. 299.

⁶⁶ Ibid., p. 300.

⁶⁷ Ibid., p. 301.

⁶⁸ Ibid.

⁶⁹ Ibid.

rejected that contention, and no expressed immunity is
⁷⁰conferred by the Act. The two dissenting judges (Harlan
 and Stewart) disagreed due to their opinion that this
 judgment would almost completely nullify the Bank Merger
 Act. If the Attorney General's report to the appropriate
 banking agency was not acted upon in a satisfactory manner,
⁷¹a Section 7 suit may be commenced immediately.

Less than one month after the Antitrust Division filed
 suit against the Philadelphia National Bank--Girard Corn
 Exchange merger, the Justice Department filed a Section 1
 Sherman Act civil antitrust suit (the merger was in
 restraint of trade) against the approved and consummated
 merger between First National Bank and Trust Company and the
 Security Trust Company, both of Lexington, Kentucky. The
 combined bank would have had 51.95 percent of the deposits,
⁷²and 54.2 percent of the loans of the county market. The
 Supreme Court ruled against the merger arguing that the
 percentage of business controlled would be a restraint on
⁷³trade. Again, Justice Harlan and Justice Stewart

⁷⁰
 Ibid., p. 302.

⁷¹
 Ibid., p. 304.

⁷²
 Ibid., p. 305.

⁷³
 Ibid., p. 306.

dissented arguing that the combination's only fault might
⁷⁴
 have been bigness--not badness.

Post Bank Merger Act of 1966 cases confirmed the two cases previously cited as to the appropriate section of law that bank mergers would be decided on. The main issue was the anticompetitive nature of the combination. The relevant geographical market and relevant line of commerce were the only tools for the merging banks. The goal of the merging banks was to broaden the geographic market and line of commerce in order to dilute concentration ratios that were used to make the decision.

Antitrust laws are not the only impediment to mergers. The mere threat of civil antitrust litigation may deter or
⁷⁵
 determine the fate of commercial bank mergers. Table 4 is a sample of case history indicating the successful use of threatened litigation. Of these sixteen commercial bank mergers, all were abandoned before a court decision was made.

During the 1960s the Antitrust Division of the Justice Department attempted to shift some emphasis from horizontal
⁷⁶
 extension mergers to market extension mergers. Three major thrusts of the attack upon market extension mergers exist. These three are potential competition, entrenchment,

⁷⁴

Ibid., p. 307.

⁷⁵

Ibid., p. 321.

⁷⁶

Ibid., p. 333.

TABLE 4
COMMERCIAL BANK MERGERS ATTACHED BY JUSTICE DEPARTMENT AFTER REGULATORY APPROVAL
1960-70

Name and Address of Banks	Justice Dept. File Date	Deposit Size (mill)		Relative Size		Gross Concentration Ratio
		Acquiring	Acquired	Acquiring	Acquired	
1. Calumet National Bank of Hammond Hammond Mercantile National Bank of Hammond, Ind.	10/10/63	45	39	1 (city) 4 (serv. area)	2 (city) 5 (serv. area)	80 (city) 17 (serv. area)
2. First National Bank of St. College The People National Bank of St. College, Pennsylvania	6/17/66	21	16	1	3	42
3. National Bank and Trust Company The Keystone Trust Co., Harrisburg, Pa.	10/12/67	191	10	1 (region)	4 (city)	30
4. The York Bank & Trust Company The First National Bank of York, York, Pa.	11/23/67	101	46	4	5	38
5. County National Bank, Middletown Citizens Bank of Monroe, N.Y.	12/15/67	108	11	3	12	33
6. New Jersey National Bank & Trust Co. Neptune & Belmar-Wall National Bank, Monmouth County, N.J.	11/16/68	98	25	4	6	20
7. Nevada National Bank of Commerce, Reno Bank of Las Vegas, Las Vegas Valley Bank of Nevada, Reno	8/23/68	122	94+18	2	3+7	28
8. The Fidelity Bank of Philadelphia Doylestown National Bank & Trust Co., Doylestown, Pa.	9/10/68	1,057	26	4 (Phil.)	7 (Bucks Cty)	20

Table 4 -- continued

9. Girard Trust Bank of Philadelphia Doylestown Bank & Trust, Doylestown, Pa.	9/10/69	1,457	33	3 (Phil.)	5 (Bucks Cty)	13
10. Pennsylvania National Bank & Trust Co., Pottsville The Merchants National Bank of Shenandoah, Pa.	9/7/69	95	11	1	5	32
11. Virginia National Bank, Norfolk, Va. Bank of Hampton Roads, Va.	1/20/69	629	18	2 (state)	2 (local area)	20
12. Crocker-Citizens National Bank, San Francisco, California Bank of Sonora County, Sebastopol, California	4/3/69	3,747	23	4 (state) 5 (county)	4 (county)	9 (state) 11 (county)
13. Continental Bank & Trust Company, Morristown, Pa. Merchants National Bank of Allentown, Pa.	4/24/69	435	132	6 (Phil.)	3 (local)	18
14. Connecticut Bank & Trust Co., Hartford, Conn. Connecticut National Bank, Bridgeport, Conn.	5/9/69	781	296	2	5	24
15. National Bank of Manassas, Va. (Subsidiary of First Virginia Bankshares) First National Bank of Quantico, Va.	5/14/69	13 (415 for holding company)	12	3 (city) Held. Co. is 5 (state)	4 (city)	39
16. First National Bank of Sunbury Snyder County Trust Co., Sellingsgrove, Pa.	10/24/69	31	20	1	1-3	21

Source: O. Goodman, Judicial Decisions and Litigation Affecting Competition in Banking. Proceedings of the Conference on Bank Structure and Competition, Federal Reserve Bank of Chicago, Chicago, Illinois, May 7-8, 1970.

and reciprocity. The first two have been made applicable to commercial banking, and the third, thus far, has not been⁷⁷ assimilated into the commercial bank antitrust law.

On September 30, 1963, the Comptroller of the Currency approved the merger of the Crocker-Anglo National Bank, San Francisco, California, with the Citizens National Bank, Los Angeles, California.⁷⁸ Neither bank competed in the same geographical service area of each other but the Justice Department litigated arguing that each bank was a potential competitor. The case was decided at the District Court level in favor of the merger and was not appealed to the⁷⁹ Supreme Court.

In five subsequent cases where the Justice Department argued on the grounds of potential competition, First National Bank of Jackson, Mississippi and Bank of Greenwood, Greenwood, Mississippi,⁸⁰ First National Bank of Maryland and First National Bank of Hartford County, Bellaire,⁸¹ Maryland, First National Bank of Boise, Idaho, and the⁸² Fidelity National Bank of Twin Falls, Idaho, and, First

⁷⁷

Ibid.

⁷⁸

Ibid., p. 339.

⁷⁹

Ibid., p. 340.

⁸⁰

Ibid.

⁸¹

Ibid., p. 341.

⁸²

Ibid., p. 342.

National Bank of Greeley and First National Bancorpora-
⁸³tion, the merging banks won in court. These five defeats in addition to some other Justice Department losses, using the potential competition argument, closed the doors on this issue being used to fight bank mergers.

In conclusion, case law shows that mergers between banks directly competing with each other, in markets where concentration is high and the market can be considered
⁸⁴oligopolistic, are unrealistic. The Justice Department has never lost such a case which reached final adjudica-
⁸⁵tion. Since the Justice Department has never won a potential competition market extension merger case, banks and bank holding companies are simply changing their acquisition and consolidation efforts to comply with the
⁸⁶antitrust standards as formulated by the Supreme Court.

XI. Conclusions

The preceding discourse is relevant to the analysis of stockholder returns in bank acquisitions.

⁸³
 Ibid., p. 343.

⁸⁴
 Ibid., p. 363.

⁸⁵
 Ibid.

⁸⁶
 Ibid., p. 364.

Applications, to acquire other banks, submitted to the Federal Reserve Board will experience time delays (in the processing of the application) and possess uncertainty as to the outcome (approval or denial). The time delay between the merger announcement date and merger approval date is between five to six months. The BHCA (1956) requiring the Federal Reserve Board to make a decision within ninety-one days is usually extended beyond this date because of deficiencies in the completion of Form Y-2. As it takes time to prepare the Form Y-2 for submission, information about the impending merger application may "leak out" to the public before the merger announcement date.

The merger does not take place when the merger is approved by the appropriate regulatory agencies. The Federal Reserve Board grants a ninety day period, immediately following the merger approval date, for the acquirer to consummate the merger. Occasionally, this ninety day period is extended upon request.

There is uncertainty at the merger announcement date as approximately ten percent of formal applications (at the Federal Reserve Board level) were denied during the time period of this study.

CHAPTER FIVE

RESEARCH DESIGN AND HYPOTHESIS

I. Sample and Data

The time period chosen to study the effects of mergers on bank holding companies was the sixteen-year period from January 1968 through December 1983. To be included in the sample, a bank holding company had to acquire another bank (only one) in isolation, i.e., without acquiring other firms two years before and eighteen months after the bank acquisition. The definition of "Bank" is that given by the Bank Holding Company Act (Section 3) and Bank Merger Act (Section 3). Thus, no confounding of effects would be arising from other acquisitions taking place. This isolation criterion reduces the sample substantially as bank holding companies were very active in the merger/acquisition market during this time period.

The merger/acquisition record was obtained from the Federal Register, Federal Reserve Bulletin and Mergers and Acquisitions Journal.

The Federal Register is a weekly publication of the U. S. Government. All bank acquisition applications must be published in this source for the public record. The Federal Reserve Board of Governors or Federal Reserve Bank reviews applications, on the Form Y-2, for approval. This

review period is on average approximately five months. The Federal Reserve Bulletin is a monthly publication of the Federal Reserve Board. All approved and denied bank acquisition applications are published in this bulletin. The successful Bank/BHC applicant has ninety days after the approval date to consummate the merger/acquisition. The Mergers and Acquisitions Journal is a private publication of successful mergers and acquisitions reporting after the deal is completed. See Figure 3 for a typical example of a Federal Reserve Board merger approval order. The BHC had to be a publicly traded stock with price data obtained from the Bank and Quotation Record. Presently there are over one thousand bank stocks trading.

The Bank and Quotation Record data base published by the Financial Chronicle changed throughout the time period of the study. In the earlier time periods monthly closing prices for bank stocks, among others, were provided. If a monthly closing price was not available the bid price was used. This is a more conservative figure than the ask price or average of the bid and ask price. See Table 5 for an example of bank stock price listings.

Dividend information, including cash dividends, stock dividends and splits, and rights offerings were obtained from Moody's Annual Dividend Record and Standard and Poor's Annual Dividend Record. Monthly holding period returns were calculated using the information collected from these

FIGURE 3

FIRST WISCONSIN CORPORATION, MILWAUKEE, WISCONSIN

Order Approving Acquisition of Bank

First Wisconsin Corporation, Milwaukee, Wisconsin, a bank holding company within the meaning of the Bank Holding Company Act, has applied for the Board's approval under section 3(a)(3) of the Act (12 U.S.C. § 1842(a)(3)) to acquire 100 percent of the voting shares of Bank of Two Rivers, Two Rivers, Wisconsin ("Bank").

Notice of the application, affording an opportunity for interested persons to submit comments and views, has been given in accordance with section 3(b) of the Act. The time for filing comments and views has expired and the Board has considered the application and all comments received in light of the factors set forth in section 3(c) of the Act (12 U.S.C. § 1842(c)).

Applicant, the largest banking organization in Wisconsin, controls 19 banks with aggregate deposits of \$3.05 billion, representing approximately 13.6 percent of total deposits in commercial banks in the state.¹

Bank, with deposits of \$40.8 million, is the 135th largest bank in Wisconsin, holding 0.18 percent of total deposits in commercial banks in the state. Acquisition of Bank would have no appreciable effect upon the concentration of banking resources in Wisconsin.

Bank is the fifth largest of 13 banks in the relevant banking market, and holds 10.3 percent of deposits in commercial banks in the market.² Because none of Applicant's subsidiaries operate in this market, consummation of the proposed transaction will not eliminate any existing competition. The Board concludes that consummation of the proposal would not eliminate substantial probable future competition in the market because the market's three-firm concentration ratio is 60.3 percent, and therefore, the market is not highly concentrated under the Board's proposed guidelines.³ Accordingly, the Board has determined that competitive considerations are consistent with approval of the application.

1

All banking data are as of June 30, 1982.

2

The relevant banking market is approximated by all of Manitowoc County except the towns of Schleswig and Eaton.

3

Proposed "Policy Statement for Assessing Competitive Factors under the Bank Merger Act and The Bank Holding Company Act," 45 Federal Register 9017 (March 1982).

FIGURE 3 -- Continued

The financial and managerial resources and future prospects of Applicant, its subsidiaries and Bank are regarded as consistent with approval. Thus considerations relating to banking factors are consistent with approval of the application. Considerations relating to the convenience and needs of the community to be served also are consistent with approval. Accordingly, it is the Board's judgment that consummation of the proposal to acquire Bank would be consistent with the public interest and that the application should be approved.

On the basis of the record, the application is approved for the reasons summarized above. The acquisition of shares of Bank shall not be made before the thirtieth calendar day following the effective date of this Order or later than three months after that date, unless such period is extended for good cause by the Board of Governors or by the Federal Reserve Bank of Chicago, pursuant to delegated authority.

By order of the Board of Governors, effective June 14, 1983.

Voting for this action: Chairman Volcker and Governors Martin, Partee, Rice, and Gramley. Absent and not voting: Governors Wallich and Teeters.

[SEAL] James McAfee,
Associate Secretary of the Board

sources. See Table 6 for an example of the dividend information provided by this source. When a BHC was listed on the Center for Research in Security Prices (CRSP) Tapes and/or Standard and Poor's COMPUSTAT Tapes the monthly holding period return data from those sources were used. When considering the estimation period and analysis of the post-merger period the time period for data collection spanned from January 1962 through June 1985. This criteria resulted in a sample size of one hundred-twelve. See Appendix A for a listing of acquirer banks and the acquired banks and merger approval dates.

The preceding data collection process was very laborious. Thousands of acquisitions were checked for the isolation criterion on the computer using the Lotus software package. Then, thousands of bank stocks (having passed the isolation criterion) were manually searched for seven years of stock price data on the Bank and Quotation Record microfilm and then for seven years of dividend, rights and splits data.

II. Methodology and Hypothesis

Motivation to acquire another bank could be to maximize shareholder wealth. In capital budgeting the decision criterion is to accept all those investments with a Net Present Value (NPV) greater than zero. This positive NPV may arise due to synergies, market power, undervaluation, and/or unused tax factors. Investment decisions of

TABLE 6

DIVIDENDS

Dvd \$	Declared	Ex-date	Stk Record	Payable	Dvd \$	Declared	Ex-date	Stk Record	Payable
First Natl Bk Kenosha (Wis)- Cap p\$5 OTC					First Natl Bk Oakland Md- Cap p\$10 OTC				
Rate- 0.33Q Pd'83- 2.12 & stk '82- 2.00					Rate- 1.15S Pd'83- 2.90 '82- 2.20				
0.33	Jan 18	Feb 9	Feb 15	Mar 10	1.10	Dec 8	Jan 3	Dec 10	Jan 3
*10% Stk	Apr 19	Apr 21	Apr 5	Apr 20	0.65 Ext	Dec 8	Jan 3	Dec 10	Jan 3
0.33	Apr 19	May 23	May 27	Jun 10	1.15	May 28	Jun 22	Jun 10	Jun 30
0.33	Jul 19	Aug 10	Aug 18	Sep 9	First Natl Bk (Ottawa Ill)- Com p\$20 OTC				
0.33	Oct 18	Nov 7	Nov 15	Dec 9	Rate- 3.00S Pd'83- 11.00 '82- 10.50				
0.80 Ext	Oct 18	Nov 7	Nov 15	Dec 9	3.00	Dec 8	Dec 29	Dec 1	Jan 3
*Fractions in cash at \$2.70 a sh.					5.00 Ext	Dec 8	Dec 29	Dec 1	Jan 3
First N B Kokomo Ind- Com p\$1 OTC					3.00	Jun 8	Jun 22	Jun 1	Jun 30
Rate- None Pd'83- 1.45 '82- 0.60					First Natl Bk Palm Beach- Com p\$10 OTC				
0.50	Dec 15	Jan 5	Dec 15	Jan 4	Rate- 0.90Q Pd'83- 3.60 '82- 3.45				
0.25	Mar 9	Apr 4	Mar 9	Apr 1	0.90	Feb 18	Mar 11	Mar 1	Mar 10
0.30	Jun 21	Jul 5	Jun 21	Jul 1	0.90	May 20	Jun 3	Jun 1	Jun 10
0.40	Sep 20	Oct 3	Sep 20	Sep 30	0.90	Aug 19	Aug 26	Sep 1	Sep 12
First Natl Bk Lafayette La- Cap p\$10 OTC					0.90	Nov 18	Nov 30	Dec 1	Dec 12
Rate- None Pd'83- 21.00 '82- 13.00					First Natl Bk (Peoria)- Cap p\$100 OTC				
10.00	Dec 9	Jan 3	Dec 9	Jan 1	Rate- None Pd'83- None '82- 11.00				
11.00	Jun 9	Jul 1	Jun 9	Jun 30	Acquired by First Peoria Corp				
First Natl Bk Lake Forest- Cap p\$10 OTC					First N B Portsmouth N H- Cap p\$3 OTC				
Rate- 0.30Q Pd'83- 1.25 '82- 1.20					Rate- None Pd'83- 4.50 '82- new- 3.50; old- stk				
0.30	Feb 28	Mar 7	Mar 10	Mar 15	1.93	Jun 8	Jun 14	Jun 20	Jun 30
0.30	May 23	Jun 6	Jun 10	Jun 15	2.57	Dec 5	Dec 13	Dec 19	Dec 30
0.30	Aug 22	Sep 2	Sep 10	Sep 15	First Natl Bk Reidsville NC- Com p\$1 OTC				
0.30	Nov 28	Dec 7	Dec 10	Dec 15	Rate- 0.06Q Pd'83- 0.26 '82- 0.25				
0.05 Ext	Nov 28	Dec 7	Dec 10	Dec 15	0.06	Feb 10	Mar 9	Mar 15	Mar 31
First Natl Bk Lancaster Cnty- Cap p\$10.00 OTC					0.06	May 12	Jun 9	Jun 15	Jun 30
Rate- 0.44Q Pd'83- 1.71 & stk '82- 1.19 & stk					0.06	Aug 17	Sep 9	Sep 15	Sep 30
0.42	Dec 14	Dec 17	Dec 23	Jan 3	0.06	Nov 10	Dec 9	Dec 15	Dec 30
0.42	Mar 8	Mar 17	Mar 23	Apr 1	0.02 Ext	Nov 10	Dec 9	Dec 15	Dec 30
0.43	May 31	Jun 9	Jun 15	Jul 1	First N B Salem Ohio- Com p\$4 OTC				
0.44	Aug 23	Sep 9	Sep 15	Oct 3	Rate- None Pd'83- 1.90 '82- 1.70				
*5% Stk	Sep 13	Oct 3	Oct 7	Nov 7	0.50	Jun 7	Jun 13	Jun 7	Jun 21
0.44	Nov 22	Dec 15	Dec 21	Jan 4 '84	0.50	Dec 13	Dec 19	Dec 9	Dec 18
*Fractions in cash at \$32.55 a sh.					0.90 Spl	Dec 13	Dec 19	Dec 9	Dec 18
First Natl Bk Logansport Ind- Cap p\$5 OTC					Acquired by Society Corp				
Rate- None Pd'83- 1.05 '82- 1.80 & stk					First Natl Bk So'wstrn Ohio- Com p\$8.00 OTC				
0.15 Ext	Dec 20	Dec 27	Dec 31	Jan 3	Rate- None Pd'83- 1.02 '82- 1.84				
0.45	Feb 21	Mar 3	Mar 9	Mar 21	0.51	Oct 26	Dec 9	Dec 15	Jan 3
0.45	May 18	May 23	May 27	Jun 20	0.51	Feb 22	Mar 10	Mar 18	Apr 1
Acquired by First National Bankshares Inc Ind					Exchanged for stock of First Financial Bancorp				
First Natl Bk LI (Glen Head)- Cap p\$5 OTC					First Natl Bk Stevens Pt (Wisc)- Com p\$5 OTC				
Rate- None Pd'83- 0.50 & stk '82- 0.35 & stk					Rate- 0.70S Pd'83- 1.60 '82- 1.60				
0.35	Dec 6	Dec 15	Dec 21	Jan 21	0.70	May 17	Jun 6	Jun 10	Jun 15
0.15 Spl	Dec 6	Dec 15	Dec 21	Jan 21	0.70	Nov 15	Dec 5	Dec 9	Dec 19
5% Stk	Jul 1	Jul 12	Jul 18	Sep 19	0.20 Ext	Nov 15	Dec 5	Dec 9	Dec 19
0.40	Dec 6	Dec 14	Dec 20	Jan 20 '84	First Natl Bk Tuscaloosa Ala- Com p\$5 OTC				
0.20 Spl	Dec 6	Dec 14	Dec 20	Jan 20 '84	Rate- None Pd'83- 0.80 '82- 1.25				
First Natl Bk Marion (Ind)- Cap p\$10 OTC					0.30	Jan 17	Jan 20	Jan 26	Feb 1
Rate- 0.50S Pd'83- 1.20 '82- 1.00					0.10 Ext	Jan 17	Jan 20	Jan 26	Feb 1
0.50	Nov 9	Nov 24	Dec 1	Jan 3	0.30	Apr 18	Apr 22	Apr 26	May 1
0.20 Spl	Jan 11	Jan 25	Dec 1	Jan 24	0.10 Ext	Apr 18	Apr 22	Apr 26	May 1
0.50	May 10	Jun 2	Jun 1	Jun 30	Acquired by First Tuscaloosa Corp				
0.50	Nov 8	Nov 25	Dec 1	Jan 3 '84	First Natl Bk (Vicksburg)- Com p\$8 OTC				
First Natl Bk Marshall Tex- Cap p\$4 OTC					Rate- None Pd'83- 1.00 '82- 1.00 & stk				
Rate- None Pd'83- 0.16 '82- new- 0.16; old- 0.30 & stk					0.50	Nov 23	Jan 4	Dec 31	Jan 3
0.08	Dec 9	Jan 4	Dec 20	Jan 3	0.50	Jun 28	Jul 1	Jun 28	Jun 30
0.08	Mar 10	Apr 4	Mar 18	Apr 1	First Natl Bk W Chester Pa- Cap p\$20 OTC				
First Natl Bk Massillon O- Com p\$5 OTC					Rate- 2.50Q Pd'83- 13.50 '82- 13.10				
Rate- 0.15Q Pd'83- 0.85 '82- 1.00					2.50	Dec 3	Dec 14	Dec 20	Jan 3
0.25	Mar 15	Mar 21	Mar 25	Mar 31	1.50 Spl	Dec 3	Dec 14	Dec 20	Jan 3
0.25	Jun 21	Jun 27	Jun 25	Jun 30	2.50	Mar 11	Mar 17	Mar 23	Apr 1
0.15	Sep 20	Sep 27	Sep 27	Sep 30	2.50	May 28	Jun 14	Jun 20	Jul 1

merger/acquisitions are company specific. Past event studies of mergers, Halpern (1973), Mandelker (1974), Langetieg (1978), Lobue (1984), Desai and Stover (1985), Pettway and Trifts (1985) and others determined abnormal performance of acquiring firms surrounding the merger date.

When monthly holding period return data could not be obtained from the CRSP or Compustat Tapes, a holding period return was calculated (information collected from the sources stated above) using the following formula:

$$R_{i,t} = \frac{P_1 + D_1 + \frac{N_1 - N_0}{N_0} P_1 + \frac{P_1 - S}{R} - P_0}{P_0} \quad (1)$$

where: $R_{i,t}$ = Monthly Holding Period Return

P_1 = Stock Price at the end of the month

D_1 = Cash Dividend paid during the month

N_1 = Number of Shares at the end of the month

N_0 = Number of Shares at the beginning of the month

S = Subscription Price of Rights Offerings

R = Number of Rights needed to buy one new share

P_0 = Stock Price at the beginning of the month

The market model form of the Capital Asset Pricing Model attributed to Sharpe (1963, 1964) and Lintner (1965) was used in these studies.

The market model states:

$$\tilde{R}_{i,t} = \hat{a}_i + \hat{B}_{i,m} \tilde{R}_{m,t} + \tilde{e}_{i,t} \quad (2)$$

where $\tilde{R}_{i,t}$ is the monthly return including dividends, splits and rights of the acquiring bank or bank holding company i at time t , and where the tilde indicates a random variable. $\tilde{R}_{m,t}$ is the monthly return including dividends at time t of a broad portfolio of stocks. This $\tilde{R}_m$ was that given by Ibbotson Associates in the Stocks, Bonds, Bills, and Inflation 1985 Yearbook. This $\tilde{R}_m$ is the same (market return measure) as the CRSP Tapes. This $\tilde{R}_m$ is based upon the Standard and Poor's (S & P) market-value-weighted composite index. Market value weighted means that the weight of each stock in the index is proportionate to its price times the number of shares outstanding. During the sample period (for gathering returns data) January 1962 through December 1984, the S & P Composite index included the 500 largest common stocks (in terms of common stock market value) in the United States.

The estimated coefficients, $\hat{a}_i$ and $\hat{B}_{i,m}$, are estimated during the base period (-72 months to -13 months) before the Federal Reserve merger approval date at time 0 using the ordinary least squares technique. The $\tilde{e}_{i,t}$ is the error term of the model.

The error term will reflect the industry effect and company-specific effect. To eliminate the industry effect

and isolate the company-specific effect, the complete model becomes:

$$\tilde{R}_{i,t} = \hat{a}_i + \hat{B}_{i,m} \tilde{R}_{m,t} + \hat{B}_{i,B} \tilde{R}_{B,t} + e_{i,t} \quad (3)$$

where $\tilde{R}_{B,t}$ is the monthly return at time t of a bank industry portfolio of stocks. The $\tilde{R}_{B,t}$ is calculated by summing all the monthly holding period returns of the bank stocks listed on the CRSP Tapes for a given month and dividing by the number of bank stocks. There is no accurate bank stock index available in the public domain. All readily available bank stock indexes were deficient in that either the dividend return was not taken into consideration and/or the number of bank securities was small and/or was not geographically dispersed. The coefficient $\hat{B}_{i,B}$ is estimated during the same base period as above.

The Assumptions of the model (equation 3) are:

$$E(\tilde{e}_{i,t}) = 0, \text{ for all } t \quad (4)$$

$$E(\tilde{e}_{i,t}^2) = \sigma_i^2, \text{ for all } t \quad (5)$$

$$\tilde{R}_{m,t}, \tilde{R}_{B,t} \text{ fixed in repeated samples} \quad (6)$$

$$\sum_{t=1}^T (\tilde{R}_{m,t} - \bar{R}_m)^2 = 0 \quad (7)$$

$$\sum_{t=1}^T (\tilde{R}_{B,t} - \bar{R}_B)^2 = 0 \quad (8)$$

Residual returns during the test period (-12 months to +12 months where the Federal Reserve merger approval date is $t = 0$) were calculated by comparing the actual versus the predicted returns using:

$$\tilde{e}_{i,t} = \tilde{R}_{i,t} - (\hat{a}_i + \hat{B}_{i,m} \tilde{R}_{m,t} + \hat{B}_{i,B} \tilde{R}_{B,t}) \quad (9)$$

where $\tilde{e}_{i,t}$ is the monthly residual return of bank i at time t . This $\tilde{e}_{i,t}$ is the measure of "abnormal performance." The merger event is the only company-specific information that is common in time to every bank in the sample. The SPSS-X regression computer software package was used to calculate the one hundred-twelve regression formulas and residuals.

Residuals, $\tilde{e}_{i,t}$, are averaged for each month t across banks by:

$$\bar{e}_t = \frac{1}{N} \sum_{i=1}^N \tilde{e}_{i,t} \quad (10)$$

where N is the number of banks having a computed residual for month t . $\bar{e}_t$ is the average residual across banks for month t . t is -12 to +12 where the Federal Reserve merger approval date is $t = 0$.

The cumulative average residual (CAR) is then calculated to show the cumulative effects of abnormal returns in the months surrounding the merger.

$$CAR = \sum_{t=-12}^{+12} \bar{e}_t \quad (11)$$

The expected CAR should be zero if mergers have no effect on the returns to stockholders. If the banks/bank holding companies are acting in the interests of the shareholders to maximize their wealth, then the CARs should be positive. If the CARs are negative, this may suggest management is acquiring other banks for reasons other than maximization of stockholder wealth. Possibly, management pursued the merger for wealth maximization reasons, but the merger market is competitive and all potential gains vanished as the price of the acquisition was bid up. Note that the cumulative average residual is a descriptive statistic and should not be interpreted as a statistical test.

III. Statistical Tests of Hypothesis

A. Average Abnormal Return Test by Bank

The average abnormal return test by bank is defined as the cross-sectional average of each acquiring bank's residual divided by the standard deviation of the average residuals. If any bank experienced excessive abnormal return during the test period ($t = -12$ to $t = +12$) this test will indicate such an occurrence.

$$1. H_0: E(\bar{S}) = 0 \quad \text{i.e., the merger has no impact on stockholder wealth}$$

$$\text{where } \bar{S} = \frac{\sum_{t=-12}^{+12} e_{i,t}}{25} \quad (12)$$

A two-tail t-test is used to assess significance at $\alpha = .05$.

B. Positive Abnormal Returns by Bank Test

The positive abnormal returns by bank test is the use of the non-parametric signs test to monthly bank stock returns. The monthly residuals are either positive, negative or zero. The positive residuals are summed for each bank and compared to critical values for the sign test from a statistical table.

- ii. $H_0: E(P_1) = 0.5$ i.e., the merger has no impact on stockholder wealth

where P_1 is the percent of monthly positive residuals.

A two-tail t-test is used to assess significance.

C. Average Abnormal Return by Time Test

The average abnormal return by time test is defined as the average residual across all banks for each time period divided by the standard deviation of the residual for that time period. The portfolio of merger banks may have enjoyed excessive abnormal return during a particular time period surrounding the merger approval date.

- iii. $H_0: E(\bar{e}_t) = 0$ i.e. the merger has no impact on stockholder wealth

$$\text{where } \bar{e}_t = \frac{1}{N} \sum_{i=1}^N e_{i,t} \quad (13)$$

A two-tail t-test is used to assess significance.

D. Standardized Average Abnormal Return by Time Test

The standardized average abnormal return by time test is where the monthly residual of each bank is standardized (dividing the residual by that bank's standard deviation of

residuals). Then for each month t , the standardized residuals are averaged and divided by that time period's standard deviation of the standardized residuals. This test is to remedy a possible deficiency of the average abnormal return test where the variance of the returns between banks is different.

$$\text{iv. } H_0: E(\bar{R}) = 0 \quad \text{i.e., the merger has no impact on stockholder wealth}$$

$$\text{where } \bar{R} = n^{-1} \sum_{i=1}^n e_{i,t} / SD_i \quad (14)$$

SD_i is the standard deviation of bank i .

A two-tail t-test is used to assess significance.

E. Percent Positive of Abnormal Returns by Time Test

Since the distribution of stock returns is nearly symmetrical, an equal division of returns with negative and positive residuals should result. The percent positive of abnormal returns by time test is defined as the percentage of monthly residuals that are positive for each month t .

$$\text{v. } H_0: E(P_2)_t = 0.5 \quad \text{i.e., the merger has no impact on stockholder wealth}$$

A two-tail t-test is used to assess significance.

F. Percent Positive Test

Since the distribution of stock returns is nearly symmetrical, the null hypothesis, that merger has no impact on shareholder wealth, implied that there should be an equal division of mergers with negative and positive abnormal returns. Assuming abnormal returns are independent across

all mergers. Obviously, this test only evaluates the direction of returns and does not consider the magnitude of returns.

vi. $H_0: E(P_3) = 0.5$ i.e., the merger has no impact on stockholder wealth

where P_3 is the percent of mergers with positive abnormal returns.

A two-tail t-test is used to assess significance.

G. Percent Significant Test

Again, assuming stock returns are normally distributed, the average abnormal return can be used to assess individual mergers; assuming abnormal returns are independent across all mergers. There may be some bank mergers with greatly significant average abnormal returns whereas the overall average abnormal return does not possess statistically significant results.

vii. $H_0: E(P_4) = 0.5$ i.e., the merger has no impact on stockholder wealth

where P_4 is the percent of mergers with abnormal returns significantly different from zero at the 5% level.

A one-tail t-test is used to assess significance.

H. Nonparametric Runs Test on the Standardized Average Abnormal Return

The pattern of positive and negative average abnormal returns is tested using the nonparametric Runs test, i.e., are the positive average abnormal returns scattered in a fairly random manner among the negative ones when the

observations are in the order observed, that is, in order of time. There may be an opportunity to gain from mergers during a smaller time period than the entire test period ($t = -12$ to $t = +12$).

viii. $H_0: E(PR) \geq 95\%$

where PR is the percentile rank

$$\mu_\mu = \frac{2N_1N_2}{N_1+N_2} + 1 \quad (15)$$

$$\sigma_\mu^2 = \frac{2N_1N_2 (2N_1N_2 - N_1 - N_2)}{(N_1+N_2)^2 (N_1+N_2-1)} \quad (16)$$

where μ_μ is the expected normal distribution mean

σ_μ^2 is the expected normal distribution variance

N_1 is the number of positive standardized average abnormal returns

N_2 is the number of negative standardized average abnormal returns

A one-tail Z-test is used to assess significance.

I. Nonparametric Runs Test on the Average Abnormal Return

The nonparametric runs test on the average abnormal return is similar to the nonparametric runs test on the standardized average abnormal return. Average residuals are used instead of standardized average residuals. This test is conducted to detect any pattern in the residuals over time.

ix. $H_0: E(PR) \geq 95\%$

where PR is the percentile rank

$$\begin{aligned}\mu_{\mu} &= \frac{2N_3N_4}{N_3+N_4} + 1 \\ \sigma_{\mu}^2 &= \frac{2N_3N_4 (2N_3N_4 - N_3 - N_4)}{(N_3 + N_4)^2 (N_3 + N_4 - 1)}\end{aligned}\tag{17}$$

where μ_{μ} is the expected normal distribution mean.

σ_{μ}^2 is the expected normal distribution variance.

N_3 is the number of positive average abnormal returns.

N_4 is the number of negative average abnormal returns.

A one-tail z-test is conducted to assess significance.

These nine tests are used to assess the significance of merger effects on stock returns. There are advantages and disadvantages to each test.

The average abnormal return by bank test is conducted to find out which banks made statistically significant abnormal returns. If the abnormal returns were averaged at the portfolio level, then this test could fail to detect differences in firm returns due to merger if the merger has a positive impact on stockholder returns for some mergers but an off-setting negative impact for other mergers.

The positive abnormal returns by bank test is used to find out which banks made statistically significant abnormal

returns. This test differs from the average abnormal return by bank test in that it only considers the sign of the monthly returns, not the magnitude of returns. It is possible, for a particular bank, that one or a few large abnormal returns may off-set the majority of monthly returns opposite in sign. This test would remedy that deficiency.

The average abnormal return by time test is used to ferret out any statistically significant abnormal returns that occur in certain time periods for the portfolio of acquirer banks. No particular bank may gain from merger activity across the entire test period, but a specific time period may provide a significant gain or loss.

The standardized average abnormal return by time test is similar to the average abnormal return by time test except that the residuals are standardized. This standardization is done to remedy a possible deficiency of the average residuals where the variance of returns between banks is different (as mentioned previously).

The percent positive by time test is employed to isolate any time periods showing excess returns. The rationale is similar to that explaining why the positive abnormal returns by bank test is used. The average of the abnormal returns is affected by outliers where a few mergers with large abnormal returns have an influence in rejecting the null hypothesis.

The percent positive by bank test for the complete sample is similar to the prior positive tests (positive abnormal returns by bank test and percent positive by time test) except it is at the portfolio level. Again, the positive tests are insensitive to large outliers which may distort the results.

The percent significant test is administered in order to detect any unusual number of mergers with significant excess returns. This test is viewing the portfolio of average abnormal return per bank. Note the normality assumption is crucial to the use of the percent significant test.

The runs test of the portfolio average residuals by time is used to assess if there is any pattern in the order of the residuals over time. That is, the sequence of the signed abnormal returns for the portfolio may provide excess returns during a certain subperiod.

The runs test of the portfolio standardized average residuals by time is similar to the previous runs tests except that the residuals are standardized. Again, this standardization is done to remedy a possible deficiency of the average residuals where the variance of returns between banks is different.

IV. Volatility of Returns by Bank

The volatility of BHC acquirer stock returns may be affected by the occurrence of the merger, i.e. the acquirer

returns increase or decrease in variability during the time period surrounding the merger date (test period $t = -12$ to $t = +12$) as compared to the pre-merger time period (estimation period $t = -72$ to $t = -13$). The variance of the pre-merger period residuals (during the estimation period) can be compared to the variance of the contemporaneous merger period residuals for each bank (during the test period).

The calculation of the pre-merger period and contemporaneous merger period variances was as follows:

$$S_{i,E}^2 = \frac{\sum (\hat{e}_{i,t} - \bar{e}_{i,E})^2}{N_E - 1} \quad (19)$$

$$S_{i,T}^2 = \frac{\sum (\hat{e}_{i,t} - \bar{e}_{i,T})^2}{N_T - 1} \quad (20)$$

where $S_{i,E}^2$ is the sample variance of bank i residuals during the estimation period ($t = -72$ to $t = -13$).

$S_{i,T}^2$ is the sample variance of bank i residuals during the test period ($t = -12$ to $t = +12$).

$\bar{e}_{i,E}$ is the mean residual for bank i during the estimation period.

$\bar{e}_{i,T}$ is the mean residual for bank i during the test period.

$N_E = 60$ observations during the estimation period.

$N_T = 25$ observations during the test period.

An F statistic can be computed to determine if the variances of the pre-merger period residuals and the contemporaneous merger period residuals are significantly different from each other.

x. $H_0: \sigma_{i,E}^2 = \sigma_{i,T}^2$ i.e., the variance of the pre-merger period residuals equals the variance of the contemporaneous merger period residuals for each bank.

where $\sigma_{i,E}^2$ is the variance of the pre-merger period residuals for bank i.

$\sigma_{i,T}^2$ is the variance of the contemporaneous merger period residuals for bank i.

A two-tail F test is used to assess significance at $\alpha = .05$.

CHAPTER SIX

RESULTS AND INTERPRETATION

The hypothesis states that merger has no impact on stockholder wealth. This chapter examines the results of the analysis conducted employing the nine statistical tests, of the hypothesis, discussed in the previous chapter. In addition, change in the volatility of the residuals is investigated.

I. Average Abnormal Return Test by Bank

Table 7 and Figure 4 contain the results for the average abnormal return test by bank. Observing the table and figure, one notes that there are no banks with significantly ($\alpha = .05$) positive or significantly negative average abnormal returns. There is one bank with what appears to be a significantly different average abnormal return, namely Bank #18 with an average abnormal return of -0.13927. However, Bank #18 had a high standard deviation of 0.149114 resulting in a t-test statistic of -0.93404. This t-test statistic is significant at the $t = .20$ level. All the other 111 banks in this study have a lower level of statistical significance of deviation as measured by the t-test statistic. The range of average abnormal return is

Table 7
Average Abnormal Returns by Bank

Bank	Average Abnormal Return	Standard Deviation of Abnormal Return	t-Test Statistic
1	+0.015242	+0.062145	+0.245266
2	-0.005020	+0.075959	-0.066170
3	+0.015956	+0.061853	+0.257966
4	+0.016957	+0.061408	+0.276140
5	+0.015666	+0.037922	+0.413120
6	+0.022186	+0.056283	+0.394186
7	-0.007300	+0.041908	-0.174300
8	+0.004455	+0.055936	+0.079643
9	-0.025760	+0.047504	-0.542450
10	+0.007590	+0.046889	+0.161876
11	-0.001540	+0.064203	-0.023990
12	+0.010677	+0.059310	+0.179788
13	+0.012986	+0.073438	+0.176834
14	-0.003840	+0.041424	-0.092800
15	-0.005840	+0.056231	-0.103690
16	-0.014270	+0.047820	-0.298510
17	-0.004930	+0.040896	-0.120750
18	-0.139270	+0.149114	-0.934040
19	+0.005171	+0.053070	+0.097449
20	+0.004125	+0.082079	+0.050265
21	-0.004040	+0.057572	-0.070290
22	-0.010920	+0.060608	-0.180170
23	+0.028150	+0.078934	+0.356626
24	-0.001380	+0.075400	-0.018350
25	+0.013794	+0.069236	+0.199233
26	+0.010338	+0.060246	+0.171601
27	-0.003270	+0.066067	-0.049640
28	+0.006944	+0.045002	+0.154319
29	-0.006330	+0.063652	-0.099460
30	+0.001488	+0.076302	+0.019508
31	+0.015499	+0.128558	+0.120562
32	+0.003853	+0.049138	+0.078426
33	+0.033632	+0.081440	+0.412967
34	+0.012235	+0.070718	+0.173015
35	-0.023080	+0.062388	-0.369990
36	-0.001120	+0.067411	-0.016660
37	+0.004512	+0.085647	+0.052682
38	-0.014290	+0.054113	-0.264210
39	-0.001440	+0.069490	-0.020770
40	+0.034309	+0.049627	+0.691342
41	+0.022075	+0.065143	+0.338873
42	+0.035029	+0.095748	+0.365850

Table 7 -- Continued

Bank	Average Abnormal Return	Standard Deviation of Abnormal Return	t-Test Statistic
43	+0.006770	+0.060745	+0.111450
44	+0.004177	+0.075055	+0.055663
45	-0.010060	+0.195086	-0.051580
46	+0.005226	+0.083264	+0.062769
47	+0.006975	+0.059023	+0.118183
48	+0.025897	+0.147635	+0.175417
49	-0.016050	+0.101358	-0.158380
50	+0.003018	+0.094778	+0.031843
51	-0.020360	+0.098112	-0.207520
52	+0.011796	+0.099584	+0.118457
53	-0.016160	+0.067447	-0.239600
54	+0.000476	+0.136120	+0.003497
55	+0.005697	+0.070641	+0.080656
56	+0.005587	+0.061746	+0.090487
57	+0.007412	+0.057548	+0.128810
58	+0.001619	+0.031335	+0.051697
59	-0.012590	+0.051039	-0.246820
60	-0.018570	+0.084747	-0.219120
61	+0.026794	+0.060500	+0.442887
62	+0.009258	+0.064210	+0.144196
63	-0.003560	+0.075610	-0.047180
64	+0.006875	+0.040218	+0.170957
65	-0.016370	+0.036041	-0.454220
66	-0.002630	+0.040531	-0.065010
67	+0.001345	+0.061782	+0.021773
68	-0.031320	+0.075937	-0.412470
69	-0.010880	+0.058122	-0.187340
70	-0.047330	+0.078589	-0.602880
71	-0.010610	+0.039446	-0.269220
72	-0.002740	+0.058616	-0.046750
73	-0.017390	+0.041757	-0.416550
74	+0.004939	+0.082094	+0.060170
75	+0.001443	+0.027266	+0.052939
76	-0.010930	+0.035102	-0.311480
77	+0.022646	+0.093355	+0.242586
78	+0.011108	+0.057631	+0.192756
79	-0.013750	+0.087445	-0.157290
80	-0.011370	+0.072784	-0.156250
81	+0.010418	+0.034776	+0.299597
82	-0.028610	+0.087657	-0.326470
83	-0.006920	+0.047697	-0.145100
84	+0.006431	+0.066756	+0.096349
85	-0.993640	+0.076691	-0.047550

Table 7 -- continued

Bank	Average Abnormal Return	Standard Deviation of Abnormal Return	t-Test Statistic
86	-0.014650	+0.038822	-0.377400
87	-0.009600	+0.055048	-0.174470
88	-0.005310	+0.028123	-0.188810
89	+0.017379	+0.042736	+0.406669
90	-0.003140	+0.046515	-0.067610
91	-0.009760	+0.047956	-0.203700
92	-0.001280	+0.101604	-0.012660
93	-0.001860	+0.046368	-0.040200
94	-0.005960	+0.013136	-0.454240
95	-0.022510	+0.074050	-0.304060
96	-0.026060	+0.098289	-0.265160
97	+0.011368	+0.057646	+0.197218
98	+0.009537	+0.082670	+0.115363
99	-0.003940	+0.019316	-0.204220
100	-0.006240	+0.050758	-0.122950
101	-0.000830	+0.042677	-0.019610
102	-0.012670	+0.060494	-0.209470
103	-0.014780	+0.048421	-0.305340
104	+0.004908	+0.043585	+0.112623
105	-0.023690	+0.110697	-0.214050
106	+0.010469	+0.067042	+0.156155
107	+0.024652	+0.082341	+0.299397
108	-0.000120	+0.067078	-0.001800
109	-0.009100	+0.045465	-0.200350
110	+0.009518	+0.058333	+0.163176
111	+0.025318	+0.057344	+0.441522
112	+0.009785	+0.046731	+0.209400

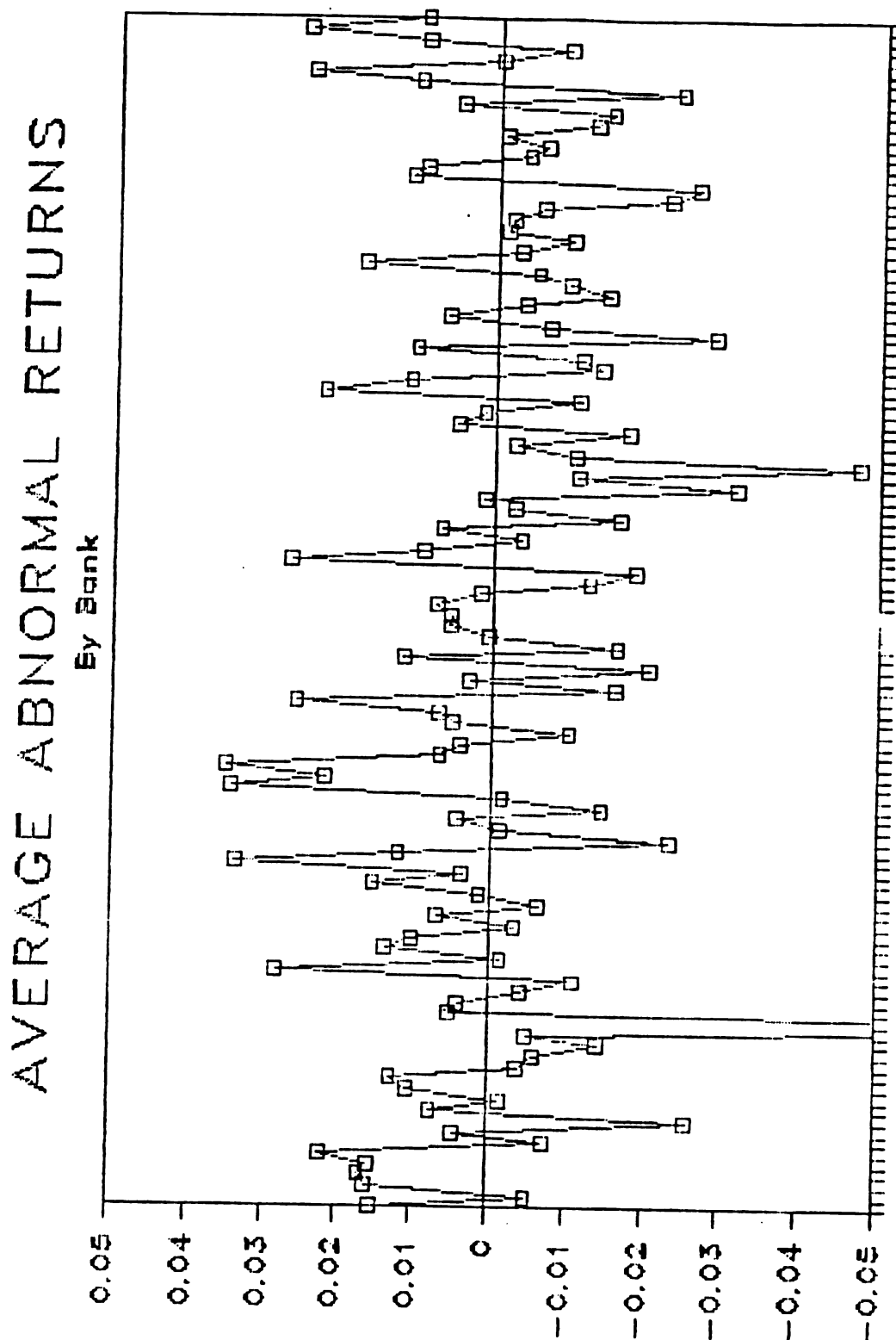


FIGURE 4 -- RESULTS OF AVERAGE ABNORMAL RETURN TEST BY BANK

from a high of 0.035029 to a low of -0.93404. One would expect with a random selection of stocks that there would be 5% of banks with significant returns. Of course, this is not a random selection of stocks.

Reasons why the acquirer banks are not earning excess abnormal returns could be that they bid too high a price for the target banks. That is, the intention of the acquirer bank is to maximize shareholder wealth but the result of their efforts fails to garner significant positive benefit. The goal of stockholder wealth maximization may not be reached because other potential acquirer banks bid up the price of the acquired bank. The premium paid over market price during 1968-83 was on average 40.48% (Source: W. T. Grimm and Co.).

Another possible explanation may be due to thinly traded stocks. The varying durations between trades would unintentionally increase the standard deviation, making statistical tests of significance less powerful. Many of the 112 stocks in the study were thinly traded, i.e., long time intervals between trades. A partial correction for this was the use of monthly returns.

In summary, the hypothesis that merger has no impact on stockholder wealth (per Average Abnormal Return Test by Bank) cannot be rejected.

II. Positive Abnormal Returns by Bank Test

The results for the positive abnormal returns by bank test are presented in Table 8. This is only a signs test, not taking into consideration the magnitude of abnormal performance. The signs test is identical to the binomial for a probability equal to 0.5. There are five banks (Bank Numbers 5, 77, 89, 93, and 111) with significant ($\alpha = .05$) positive abnormal returns (Bank #111 is significant at $\alpha = .01$), and nine banks (Bank Numbers 18, 35, 60, 67, 68, 73, 76, 82, and 94) with significant negative abnormal returns (Bank Numbers 18 and 94 are significant at $\alpha = .01$). These results are not that much different than what one would expect from chance. As stated in the Research Design and Hypothesis Section, this test is deficient in that it does not consider the magnitude of abnormal returns.

Therefore, the hypothesis that merger has no impact on stockholder wealth (per Positive Abnormal Returns by Bank Test) cannot be rejected.

III. Compounded Abnormal Return by Bank

The effect for each bank, at time $t = +12$, of the abnormal return compounded during the time period $t = -12$ to $t = +12$ expressed as a percentage is presented in Table 9 and Figure 5. These are descriptive statistics only, no statistical tests of significance were calculated. Even

Table 8
Positive Abnormal Returns by Bank

Bank	Number of Positive Abnormal Monthly Return Periods
1	17
2	13
3	13
4	13
5	18*
6	16
7	10
8	13
9	9
10	13
11	13
12	13
13	16
14	9
15	14
16	9
17	9
18	2**
19	12
20	13
21	12
22	10
23	16
24	12
25	16
26	14
27	14
28	16
29	13
30	9
31	15
32	16
33	17
34	12
35	7*
36	13
37	12
38	8
39	10
40	17
41	16

Significant

(*) $\alpha = .05$

(**) $\alpha = .01$

Table 8 -- continued

Bank	Number of Positive Abnormal Monthly Return Periods
42	16
43	14
44	9
45	13
46	13
47	14
48	10
49	10
50	9
51	10
52	11
53	11
54	11
55	15
56	15
57	15
58	13
59	11
60	7*
61	15
62	12
63	11
64	16
65	8
66	10
67	6*
68	6*
69	11
70	8
71	9
72	12
73	6*
74	10
75	13
76	6*
77	19*
78	13
79	10
80	12
81	15
82	7*
83	11

Significant

(*) $\alpha = .05$ (**) $\alpha = .01$

Table 8 -- continued

Bank	Number of Positive Abnormal Monthly Return Periods
84	14
85	12
86	13
87	10
88	10
89	18*
90	13
91	10
92	13
93	19*
94	1**
95	9
96	10
97	16
98	15
99	8
100	10
101	14
102	10
103	8
104	15
105	10
106	14
107	15
108	10
109	12
110	16
111	20**
112	15

Significant

(*) $\alpha = .05$ (**) $\alpha = .01$

Table 9
Compounded Abnormal Return by Bank

Bank	Compounded Annual Return (as a %)
1	+39.9684
2	-17.0950
3	+42.9222
4	+46.7516
5	+45.2794
6	+67.5760
7	-18.3720
8	+8.0186
9	-49.2900
10	+18.0016
11	-8.3710
12	+25.6113
13	+30.2482
14	-10.8660
15	-16.7500
16	-31.9750
17	-13.2480
18	-98.4480
19	+10.3739
20	+3.0803
21	-13.0350
22	-27.2030
23	+87.7391
24	-9.5500
25	+34.1149
26	+24.2884
27	-12.2730
28	+16.2905
29	-18.6330
30	-2.4540
31	+22.0187
32	+7.2214
33	+113.2531
34	+28.8578
35	-46.7350
36	-7.4990
37	+3.6092
38	-32.5050
39	-8.3470
40	+126.5263
41	+65.1379
42	+116.1230
43	+13.5393
44	+4.5653

Table 9 -- continued

Bank	Compounded Abnormal Return (as a %)
45	-70.5630
46	+5.5597
47	+14.5498
48	+54.4310
49	-40.5800
50	-1.6920
51	-46.7740
52	+20.0102
53	-36.8480
54	-15.9170
55	+9.2029
56	+10.0948
57	+16.0102
58	+3.0128
59	-29.2130
60	-42.7920
61	+86.4905
62	+20.6000
63	-14.0830
64	+16.5896
65	-34.7890
66	-8.0700
67	-0.5030
68	-57.7120
69	-26.7830
70	-72.4540
71	-24.7250
72	-10.1420
73	-36.8180
74	+5.5491
75	+2.8282
76	-25.0560
77	+57.9503
78	+27.2071
79	-35.1360
80	-29.9820
81	+27.9110
82	-55.8000
83	-18.0430
84	+11.4607
85	-14.4590
86	-32.0440
87	-24.1040
88	-13.2190
89	+50.8884

Table 9 -- continued

Bank	Compounded Abnormal Return (as a %)
90	-9.7750
91	-23.7220
92	-13.1920
93	-6.8510
94	-14.0630
95	-47.2170
96	-55.1380
97	+28.0580
98	+17.3400
99	-9.7860
100	-16.8840
101	-3.9830
102	-30.2430
103	-32.8890
104	+10.6910
105	-52.9470
106	+23.5663
107	+71.3930
108	-5.0360
109	-22.2730
110	+22.1219
111	+80.3458
112	+24.5584

COMPOUNDED RETURNS % By Bank

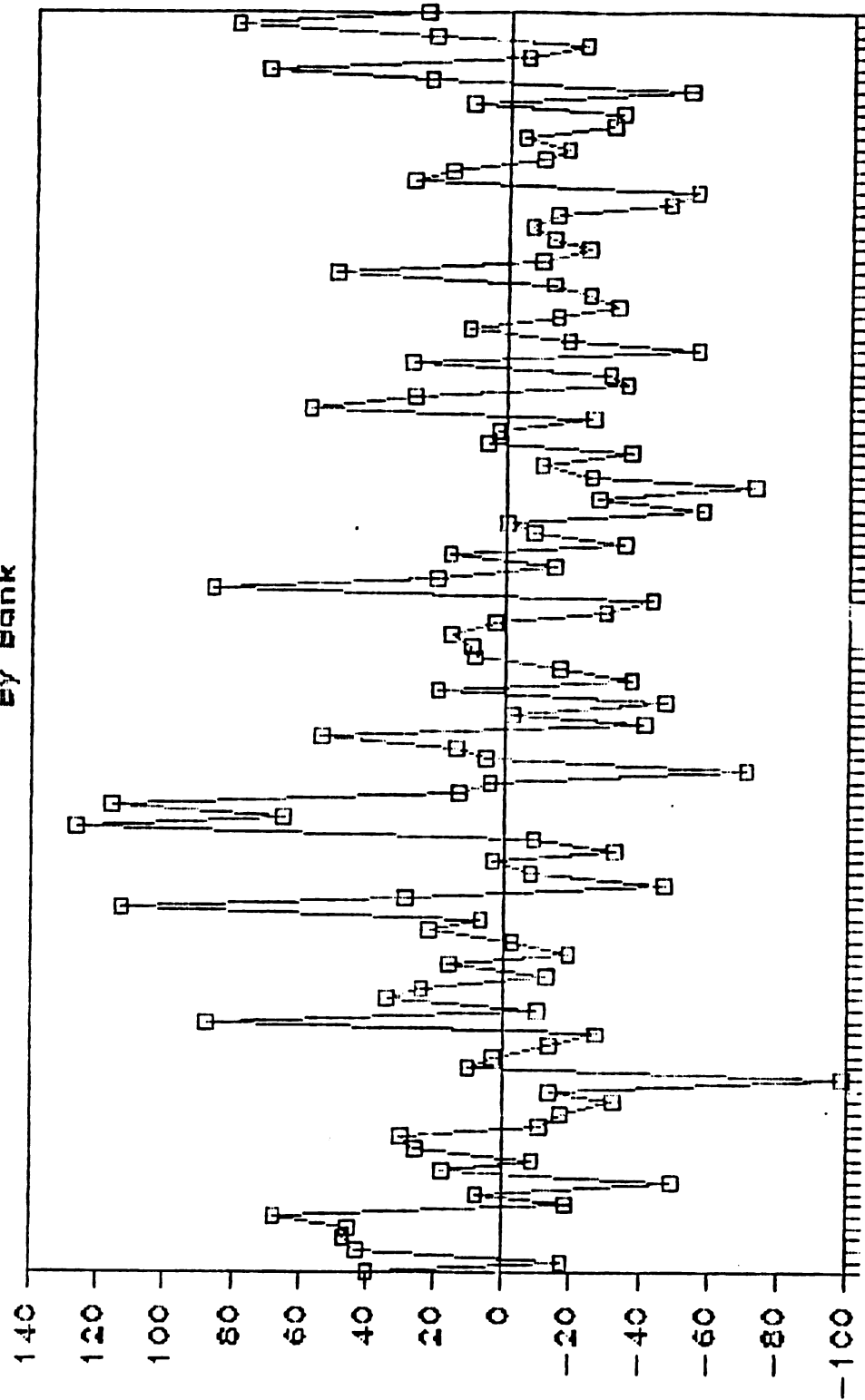


FIGURE 5 -- COMPOUNDED ABNORMAL RETURN BY BANK

though no bank has statistically positive abnormal returns for this period (from Table 7), the stockholders of Bank Numbers 33, 40, and 42 earned a compounded abnormal return of 113.2531%, 126.5263%, and 116.1230% respectively. Bank #18 sustained a compounded abnormal return of negative 98.448%.

IV. Average Abnormal Return by Time Test

Table 10 and Figure 6 present the results for the average abnormal return by time test. At no time period is the result, positive or negative, statistically significant. The range of the t-test statistic is positive 0.102933 (at time $t = -7$) to negative 0.15580 (at time $t = +10$). Inspection of the average abnormal returns indicates the average residuals are negative until $t = -7$, where they change to a strongly positive 0.006355. They remain positive until $t = -4$, where they turn negative again. This supports the results of Desai and Stover (1985) who found significant positive abnormal returns when the merger application was announced. On average, the merger application announcement period is at $t = -5$ specifically the average was 178 days and the median was 155 days. This is the announcement date reported in the Federal Register. Investors may be aware of the merger intentions of the acquiring bank before the public announcement date. This reason would explain the residuals turning positive sooner at $t = -7$.

The average abnormal returns turn positive again at $t = -1$ until $t = +1$ where they change to a strong negative

Table 10
Average Abnormal Return by Time

87 Time	Average Abnormal Return	Standard Deviation of Abnormal Return	t-Test Statistic
-12	-0.005600	+0.082979	-0.067560
-11	+0.002075	+0.058290	+0.035606
-10	-0.002220	+0.067163	-0.033100
-9	-0.001190	+0.068662	-0.017350
-8	-0.006250	+0.053205	-0.117470
-7	+0.006355	+0.061747	+0.102933
-6	+0.001758	+0.059996	+0.029307
-5	+0.002592	+0.058201	+0.044551
-4	-0.000110	+0.072967	-0.001530
-3	-0.000400	+0.068474	-0.005870
-2	-0.000750	+0.065747	-0.011400
-1	+0.005299	+0.082507	+0.064236
0	+0.001482	+0.056507	+0.026229
+1	-0.012210	+0.058842	-0.207640
+2	-0.004290	+0.079618	-0.053920
+3	+0.006240	+0.065322	+0.095529
+4	-0.005520	+0.095832	-0.057660
+5	+0.006861	+0.073174	+0.093770
+6	-0.009410	+0.066079	-0.142440
+7	-0.002880	+0.074894	-0.038490
+8	-0.002820	+0.062365	-0.045360
+9	+0.003544	+0.067766	+0.052306
+10	-0.010100	+0.064846	-0.155800
+11	+0.003973	+0.069098	+0.057504
+12	+0.002298	+0.077978	+0.029478

87

Where $t = 0$ is the month the merger is approved by the Federal Reserve Board of Governors.

AVG. ABNORMAL RETURNS

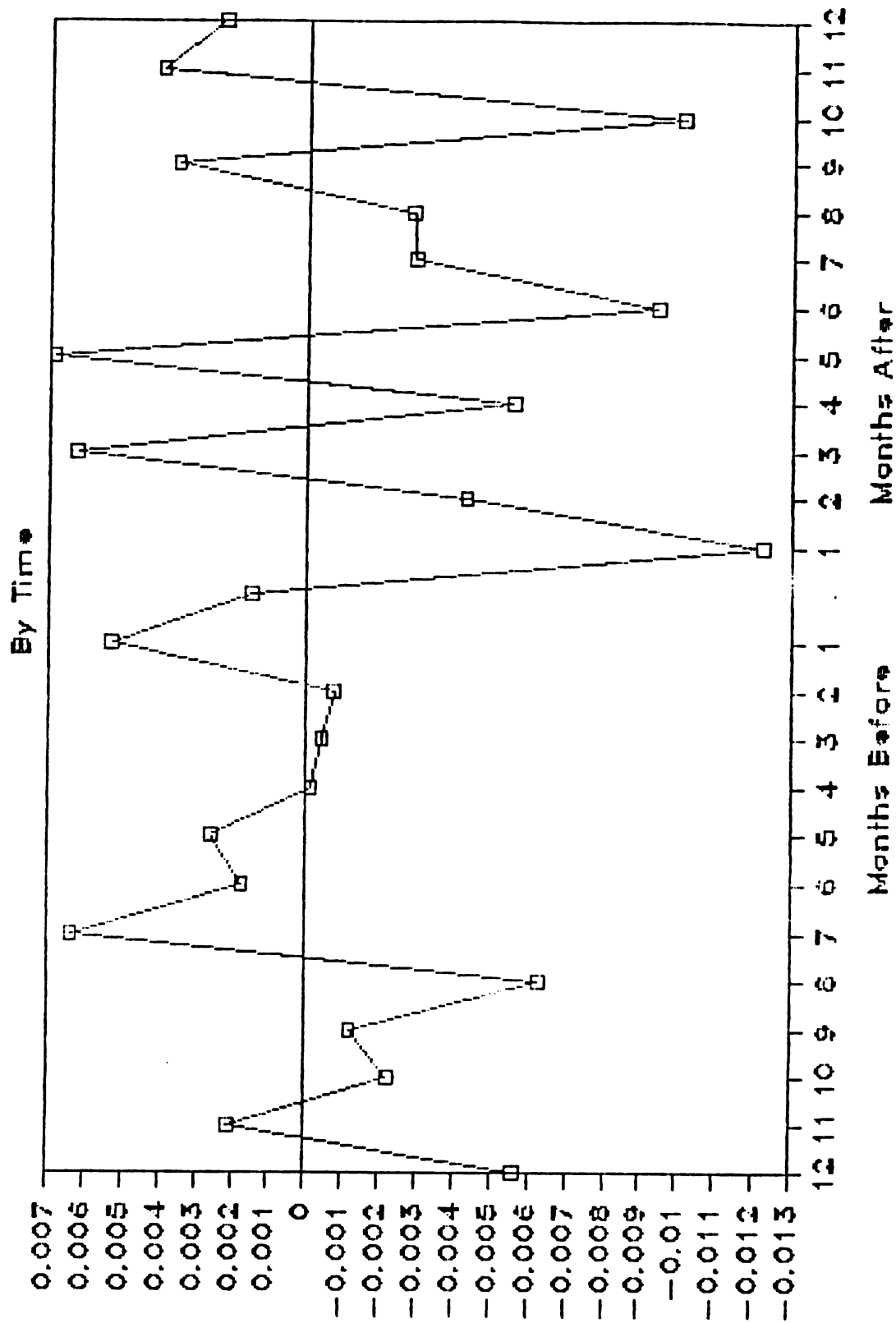


FIGURE 6 -- AVERAGE ABNORMAL RETURN BY TIME

0.01221 return. This appears to indicate the market's favorable evaluation of the acquirer's merger. The strong negative return at $t = +1$ may be due to heavy selling by the acquired bank's stockholders who accepted the acquirer's common stock (for those acquisitions consummated by a stock swap). The average abnormal return is positive at $t = +3$, which is the period where the Federal Reserve Board's merger approval authorization expires, i.e., the acquiring bank has ninety days (three months) after the merger approval date ($t = 0$) to complete the merger transaction. Subsequently, the residuals flip flop in sign until $t = +6$ where they remain negative until $t = +11$ and $t = +12$, which are positive average abnormal returns.

The hypothesis that merger has no impact on stockholder wealth (per Average Abnormal Return by Time Test) cannot be rejected.

V. Standardized Average Abnormal Return by Time Test

The results for the standardized average abnormal return by time test are stated in Table 11 and Figure 7. As stated in the methodology section this test is conducted in the event the variance of abnormal returns for each bank are not the same. The standardized abnormal return starts negative at $t = -12$, turns slightly positive for $t = -11$ and $t = -10$, switches back to negative at $t = -9$ and $t = -8$, and changes to a positive number at $t = -7$ where it stays

Table 11
Standardized Average Abnormal
Return by Time

88 Time	Standardized Average Abnormal Return	Standard Deviation of Standardized Average Abnormal Return	t-Test Statistic
-12	-0.074870	+1.093848	-0.068450
-11	+0.002046	+0.894780	+0.002286
-10	+0.008480	+0.879092	+0.009647
-9	-0.069400	+0.847601	-0.081880
-8	-0.087540	+0.874535	-0.100100
-7	+0.052599	+0.996282	+0.052795
-6	+0.010196	+0.908539	+0.011222
-5	+0.034230	+0.977928	+0.035002
-4	+0.046219	+1.047750	+0.044027
-3	-0.035150	+0.952866	-0.036880
-2	+0.036144	+0.881411	+0.041007
-1	+0.051923	+1.056464	+0.049148
0	+0.012007	+0.784222	+0.015311
+1	-0.145790	+0.919600	-0.158540
+2	-0.027760	+1.089188	-0.025490
+3	+0.064539	+1.073028	+0.060146
+4	-0.026920	+0.999668	-0.026930
+5	+0.067203	+1.038424	+0.064716
+6	-0.172650	+0.958125	-0.180200
+7	+0.008964	+0.894079	+0.010026
+8	-0.081300	+0.990842	-0.082050
+9	+0.072317	+1.027266	+0.070398
+10	-0.131400	+0.905195	-0.145160
+11	+0.056342	+0.991374	+0.056833
+12	+0.048773	+1.048650	+0.046510

88

Where $t = 0$ is the month the merger is approved by the Federal Reserve Board of Governors.

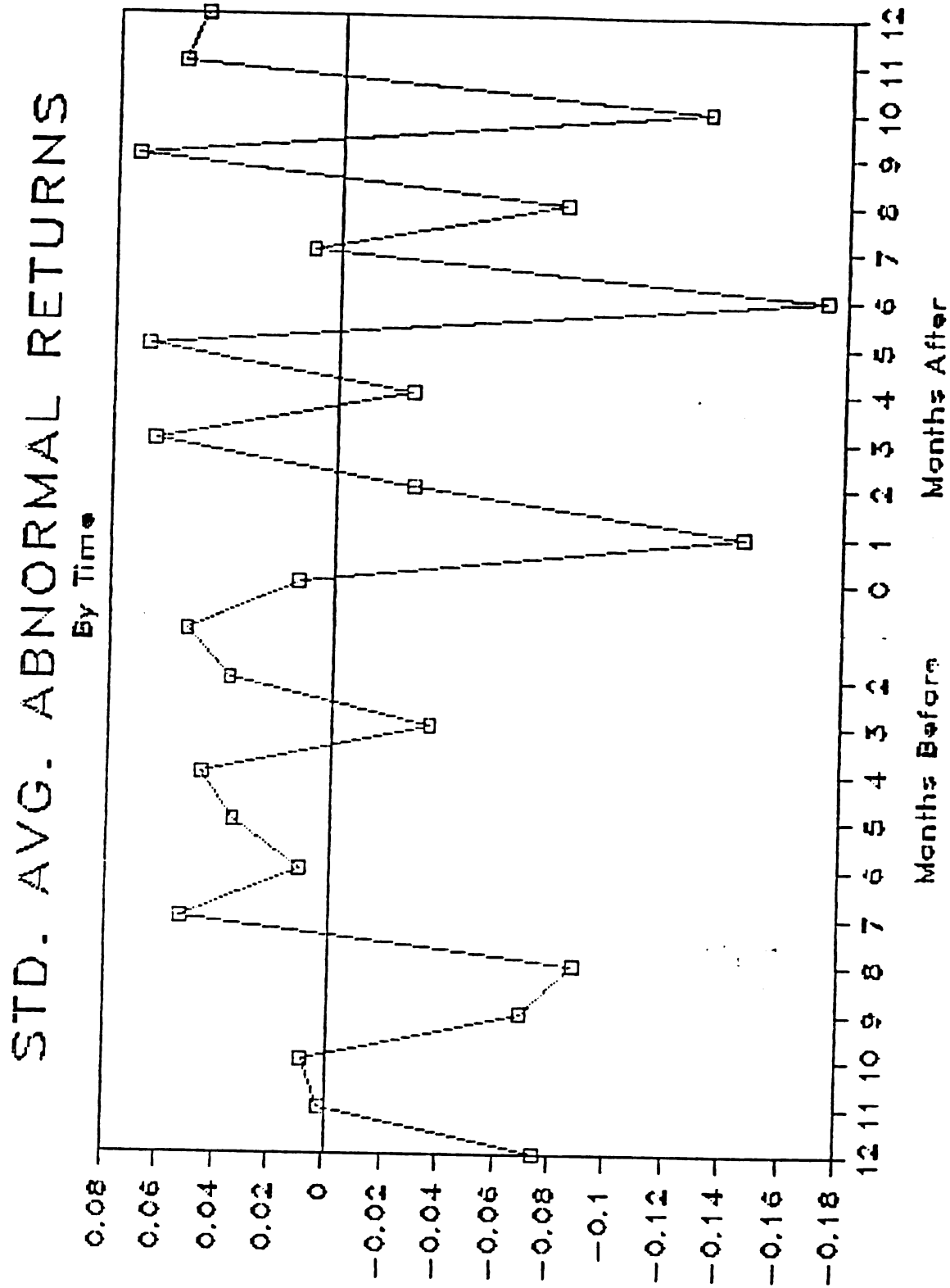


FIGURE 7 -- STANDARDIZED AVERAGE ABNORMAL RETURNS BY TIME

positive until $t = 0$ except for the period $t = -3$. This provides stronger support for the hypothesis that the merger is of positive benefit to the acquirer and starts close to the announcement period of merger intentions and continues until the merger is approved by the Federal Reserve Board at $t = 0$.

The standardized average abnormal return is positive at $t = +3$. Again, supporting the results from the Average Abnormal Return Test where $t = +3$ is the expiration time period of the Federal Reserve Board merger approval authorization. Subsequently, the standardized residuals switch in sign in alternating time periods indicating no discernible pattern and remain positive at $t = +11$ and $t = +12$.

The range of the standardized average abnormal returns is -0.17265 (at $t = +6$) to 0.072317 (at $t = +9$). None of the twenty-five time periods has a statistically significant ($\alpha = .05$) standardized average abnormal return t-test statistic. The range of the t-test statistic is tight from -0.18020 (at $t = +6$) to 0.070398 (at $t = +9$).

In summary, the hypothesis that merger has no impact on stockholder wealth (per Standardized Average Abnormal Return by Time Test) cannot be rejected.

VI. Abnormal Returns by Time

A number of statistics were calculated on the portfolio of 112 acquirer bank stocks. These are for descriptive

purposes only, no statistical tests were undertaken. This will facilitate the comparison of these results to other studies where other measures and/or different time periods were used.

A. Cumulative Average Residual

Figure 8 and Table 12 show the cumulative average residuals (CARs) by time. The CAR starts negative at -0.00560 and continues negative until time $t = -1$. The lowest CAR before the merger approval date is -0.013185 at time $t = -8$. The CAR is positive for only two time periods during the test period, one year before to one year after the merger approval date, and that is during times $t = -1$ and $t = 0$. The CAR in $t = -1$ is +0.001559 and in $t = 0$ it is +0.003041. Subsequent to the merger approval date the CAR resumes its negative posture and goes as low as -0.027544 at time $t = +10$. The CAR recovers somewhat during the remaining two time periods closing out at -0.021273, or a negative 2.1273%. These findings support the results found by Kummer and Hoffmeister (1978).

B. Standardized Cumulative Average Residual

Figure 9 and Table 12 show the computation of the standardized cumulative average residuals (CAR) by time. The standardized CAR begins at negative 0.074870 and declines to a low of -0.385913 at time $t = +10$. It stays negative throughout the entire test period reaching a pre-merger low negative 0.221284 at time $t = -8$. After time

Table 12
Cumulative Average Abnormal Return by Time

⁸⁹ Time	Cumulative Average Abnormal Return	Standardized Cumulative Average Abnormal Return
-12	-0.005600	-0.074870
-11	-0.003525	-0.072824
-10	-0.005745	-0.064344
-9	-0.006935	-0.133744
-8	-0.013185	-0.221284
-7	-0.006830	-0.168685
-6	-0.005072	-0.158489
-5	-0.002480	-0.124259
-4	-0.002590	-0.078040
-3	-0.002990	-0.113190
-2	-0.003740	-0.077046
-1	+0.001559	-0.025123
0	+0.003041	-0.013116
+1	-0.009169	-0.158906
+2	-0.013459	-0.186666
+3	-0.007219	-0.122127
+4	-0.012739	-0.149047
+5	-0.005878	-0.081844
+6	-0.015288	-0.254494
+7	-0.018168	-0.245530
+8	-0.020988	-0.326830
+9	-0.017444	-0.254513
+10	-0.027544	-0.385913
+11	-0.023571	-0.329571
+12	-0.021273	-0.280798

89

Where $t = 0$ is the month the merger is approved by the Federal Reserve Board of Governors.

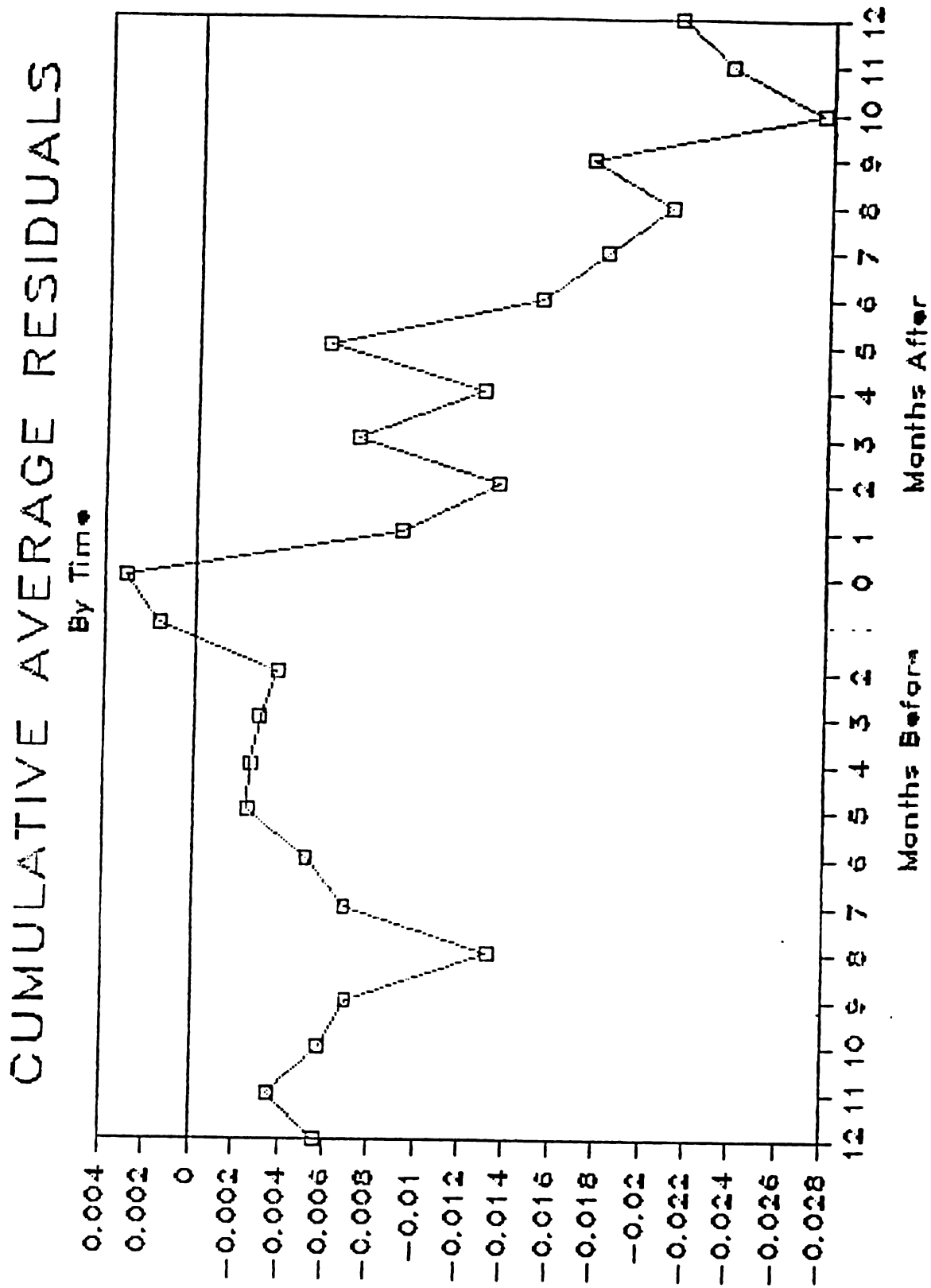


FIGURE 8 -- CUMULATIVE AVERAGE ABNORMAL RETURN BY TIME

STANDARDIZED CARS

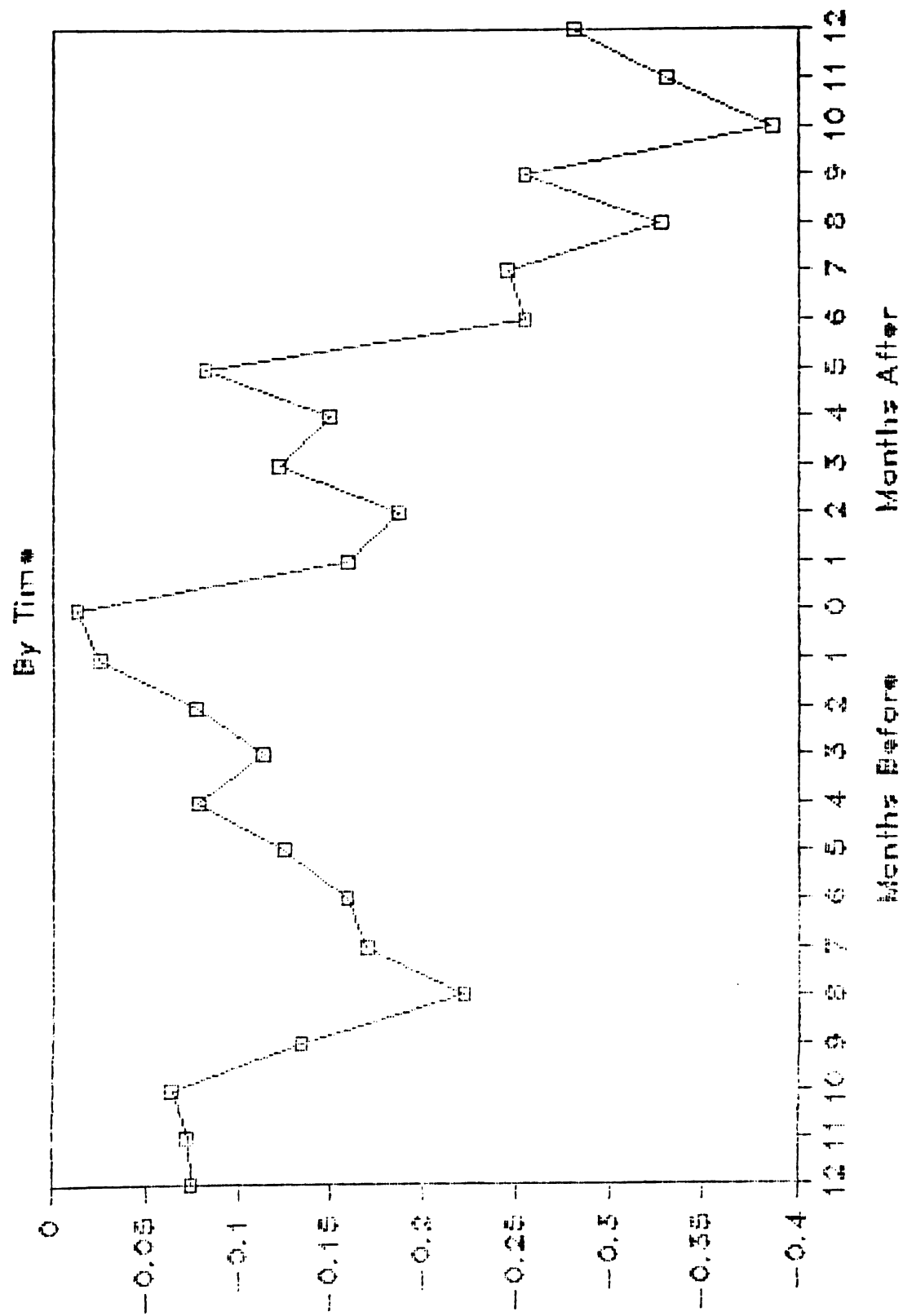


FIGURE 9 -- STANDARDIZED CUMULATIVE AVERAGE ABNORMAL RETURN BY TIME

$t = -8$ the standardized CAR increases (but remains negative) until time $t = -3$ where it decreases and subsequently resumes its steady increase until time $t = 0$ where it is negative 0.013116. Then it decreases further having a temporary reversal in magnitude at time $t = +5$ where it is negative 0.081844. The standardized CAR reaches its post-merger trough at time $t = +10$ where it is negative 0.385913 and closes out, at time $t = +12$, at negative 0.280798.

C. Compounded Abnormal Return

The compounded portfolio abnormal return at each time period is shown in Figure 10 and Table 13. This is the total compounded excess return of the portfolio calculated at each time period during the test period. The compounded abnormal return starts negative and reaches a pre-merger approval date low point of -1.3188% at time $t = -8$. It stays negative until time $t = -1$ where it changes to +0.14795%. Time $t = 0$ is positive at 0.29636% and then the compounded abnormal return resumes to negative numbers for the duration of the test period. The lowest point is -2.7494% at time $t = +10$ and it rebounds to -2.13867% at time $t = +12$.

D. Geometric Average Abnormal Return

The geometric average return of the residuals for the portfolio of 112 bank acquirers is calculated (at each time period during the test period), and is presented in Figure

Table 13
Compounded Abnormal Return by Time

90 Time	Compounded Abnormal Return
-12	-0.56000%
-11	-0.35367%
-10	-0.57489%
-9	-0.69321%
-8	-1.31388%
-7	-0.68673%
-6	-0.51214%
-5	-0.25427%
-4	-0.26525%
-3	-0.30515%
-2	-0.37993%
-1	+0.14795%
0	+0.29636%
+1	-0.92826%
+2	-1.35328%
+3	-0.73773%
+4	-1.28566%
+5	-0.68610%
+6	-1.54367%
+7	-1.82723%
+8	-2.10408%
+9	-1.75714%
+10	-2.74940%
+11	-2.36303%
+12	-2.13867%

90

Where $t = 0$ is the month the merger is approved by the Federal Reserve Board of Governors.

COMPOUNDED RETURNS %

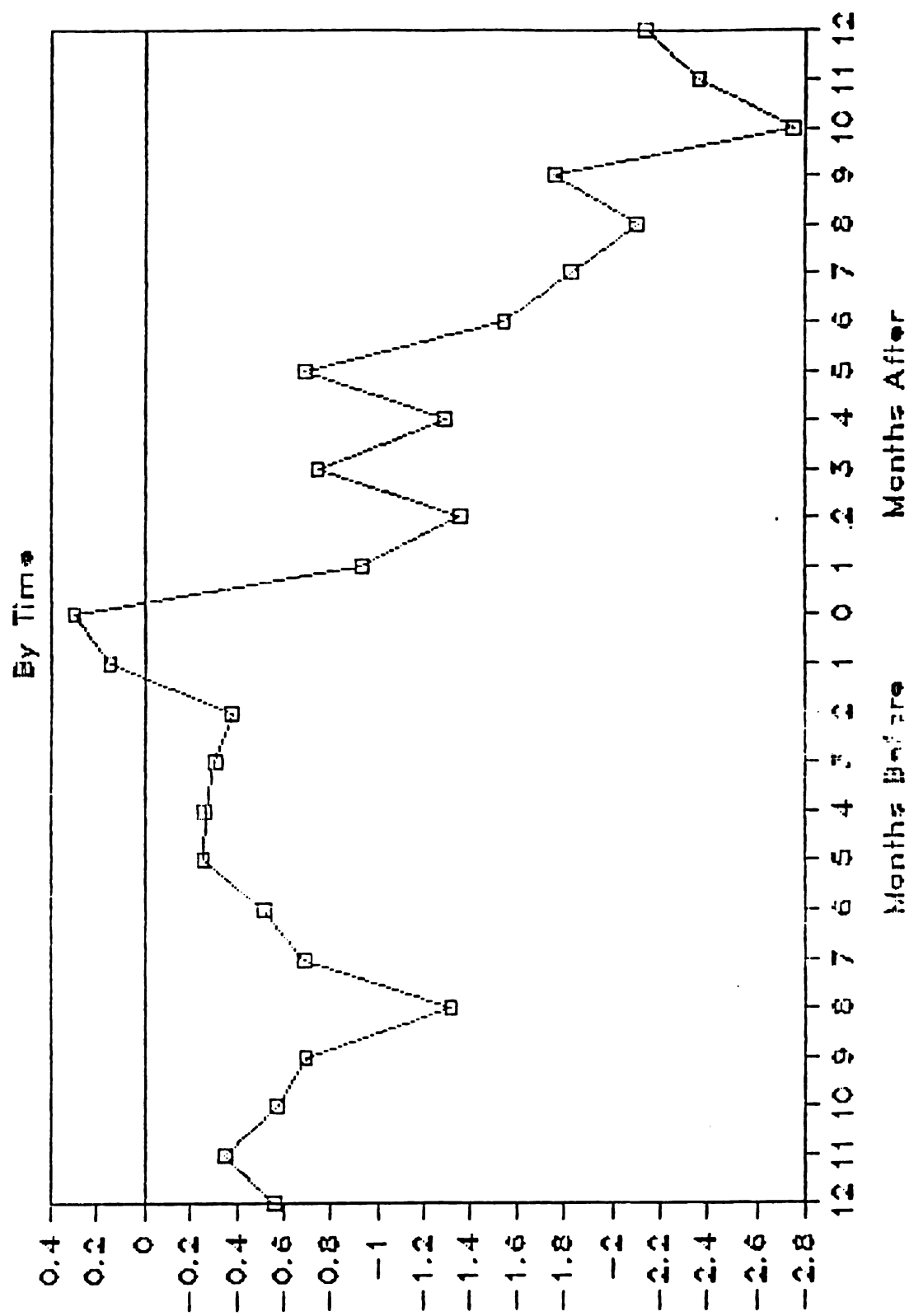


FIGURE 10 -- COMPOUNDED AVERAGE ABNORMAL RETURN BY TIME

Table 14
Geometric Average Return at Time t

⁹¹ Time	Geometric Average Return
-12	-0.560000%
-11	-0.176980%
-10	-0.191990%
-9	-0.173750%
-8	-0.264160%
-7	-0.114780%
-6	-0.006660%
-5	-0.031810%
-4	-0.029500%
-3	-0.030550%
-2	-0.038050%
-1	+0.012320%
0	+0.022765%
+1	-0.066590%
+2	-0.090790%
+3	-0.046260%
+4	-0.076080%
+5	-0.035890%
+6	-0.081840%
+7	-0.092160%
+8	-0.101210%
+9	-0.080540%
+10	-0.121130%
+11	-0.105560%
+12	-0.086430%

⁹¹

Where $t = 0$ is the month the merger is approved by the Federal Reserve Board of Governors.

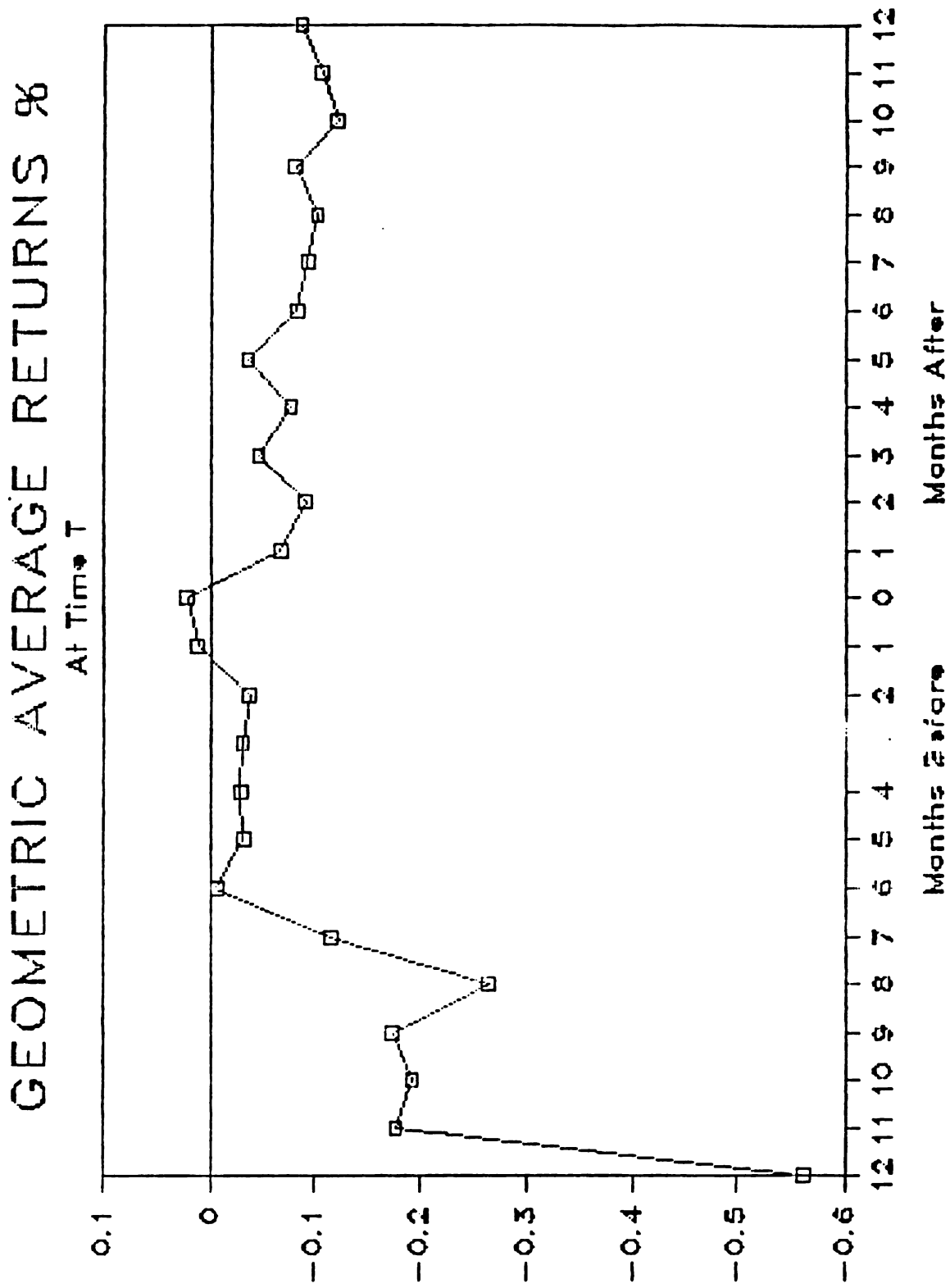


FIGURE 11 -- GEOMETRIC AVERAGE RETURNS % AT TIME T

11 and Table 14. The lowest geometric average return of -0.56% is at the beginning time period $t = -12$. Afterwards the geometric average abnormal return increased, but continues negative until consecutive time periods $t = -1$ and $t = 0$ where it is as high as 0.022765% ($t = 0$). Following this at time $t = +1$ the geometric average abnormal return becomes negative and remains below zero. The lowest the geometric average return reaches in the post-merger approval time period is -0.12113% at time $t = +10$. It finishes at -0.08643% at time $t = +12$.

The statistically insignificant negative results of this bank merger study are in contrast to other studies, Dodd (1980), Pettway and Trifts (1985) (BHC mergers), indicating significantly negative returns to the acquirer.

E. Sum of Abnormal Return

Another descriptive statistic, shown in Table 15, is the sum of the abnormal returns by time. This does not provide any additional information that the average abnormal returns by time test provided. It is furnished here only because some researchers report this statistic. The reporting of this statistic will facilitate the comparison of the findings of this study to others.

The sum of the abnormal returns alternates throughout the test period. It begins negative at time $t = -12$, inverts to a positive at time $t = -11$ and changes back to a negative at time $t = -10$. The statistic turns positive next

Table 15
Sum of Abnormal Returns by Time

92 Time	Sum of Abnormal Returns
-12	-0.627890
-11	+0.232457
-10	-0.249060
-9	-0.133460
-8	-0.700050
-7	+0.711864
-6	+0.196933
-5	+0.290413
-4	-0.012570
-3	-0.045070
-2	-0.084010
-1	+0.503595
0	+0.166003
+1	-1.368480
+2	-0.480860
+3	+0.698908
+4	-0.618880
+5	+0.768432
+6	-1.054230
+7	-0.322890
+8	-0.316890
+9	+0.397001
+10	-1.131590
+11	+0.445031
+12	+0.257450

92

Where $t = 0$ is the month the merger is approved by the Federal Reserve Board of Governors.

at time $t = -7$, remains positive until time $t = -4$ where it does not regain being positive until time $t = -1$ and $t = 0$. After the merger approval date it varies being positive (at times $t = +3, +5, +9, +11$, and $+12$) and negative (at times $t = +1, +2, +4, +6, +7, +8$, and $+10$). The range is -1.36848 (time $t = +1$) to $+0.711864$ (time $t = -7$).

F. Cumulative Sum of Abnormal Returns

The cumulative sum of abnormal returns by time descriptive statistic is reported in Table 16. Again, the information here is for comparative reasons only. This statistic provides information similar to the cumulative average residual statistics given earlier in the chapter.

The cumulative sum of abnormal returns begins negative at time $t = -12$ and remains negative until time $t = -1$ where it is positive. It repeats as a positive number in time $t = 0$ and then reverts back to a negative number for the rest of the time periods (to $t = +12$). The range is -3.1803238 ($t = +10$) to $+0.249155$ ($t = 0$). It stops at $t = +12$ at -2.4778428 .

VII. Percent Positive of Abnormal Returns by Time Test

The results of the percent positive of abnormal returns by time test are presented in Table 17. This is a non-parametric signs test (identical to the binomial for $p = 0.5$) for the residuals of all banks at a certain time t . The range of percent positive of abnormal returns by time is from 40.18% (at time $t = -4$) to 55.36% (at time $t = +4$).

Table 16
Cumulative Sum of Abnormal Returns by Time

93 Time	Cumulative Sum of Abnormal Return
-12	-0.6278900
-11	-0.3954330
-10	-0.6444930
-9	-0.7779530
-8	-1.4780030
-7	-0.7661390
-6	-0.5692060
-5	-0.2787930
-4	-0.2913630
-3	-0.3364330
-2	-0.4204430
-1	+0.0831520
0	+0.2491550
+1	-1.1193250
+2	-1.6001850
+3	-0.9012770
+4	-1.5201570
+5	-0.7517248
+6	-1.8059548
+7	-2.1288448
+8	-2.4457348
+9	-2.0487338
+10	-3.1803238
+11	-2.7352928
+12	-2.4778428

93

Where $t = 0$ is the month the merger is approved by the Federal Reserve Board of Governors.

Table 17
Percent Positive of Abnormal Returns by Time

94 Time	Percent Positive of Abnormal Returns
-12	50.00%
-11	52.68%
-10	50.00%
-9	44.64%
-8	43.75%
-7	50.89%
-6	50.00%
-5	50.00%
-4	40.18%*
-3	47.32%
-2	52.68%
-1	48.21%
0	52.68%
+1	47.32%
+2	45.54%
+3	50.89%
+4	55.36%
+5	48.21%
+6	46.43%
+7	50.89%
+8	50.00%
+9	51.79%
+10	43.75%
+11	48.21%
+12	48.21%

94

Where $t = 0$ is the month the merger is approved by the
 Federal Reserve Board of Governors.

*Significant at $\alpha = .05$.

None of the time periods are significantly positive or negative except at time $t = -4$ which is significantly negative at $\alpha = .05$. This one negative result could be explained by chance alone (i.e., out of twenty-five time observations one would expect a significant result once at $\alpha = .05$).

Therefore, the hypothesis that merger has no impact on stockholder wealth (per Percent Positive of Abnormal Returns by Time Test) cannot be rejected.

VIII. Percent Positive Test of Average Abnormal Returns for the Complete Sample by Bank

The results of the percent positive test of average abnormal returns for the complete sample by bank are presented in Table 18. This percent positive test is a non-parametric signs test (identical to the binomial at $p = 0.5$) showing the percentage of acquirers with positive abnormal returns for the complete sample of 112. The percentage of acquirers with positive average abnormal returns was 49.10714%. This is not statistically significant as the t-test statistic is only -0.1890146.

Therefore, the hypothesis that merger has no impact on stockholder wealth (per the Percent Positive Test of Average Abnormal Returns for the Complete Sample by Bank) cannot be rejected.

Table 18
Percent Positive Test of Average Abnormal Returns
for the Complete Sample by Bank

**Percent Positive of Average Abnormal Returns
for the Complete Sample by Bank**

49.10714%

Standard Deviation

4.72376%

t-Test Statistic

-0.1890146

IX. Percent Significant Test

The percent significant test results are given in Table 19. The percentage of banks with significant positive average abnormal returns was zero. This produced a t-test statistic of -0.5291526 which is not significant at $\alpha = .05$. A potential reason to explain this result may be due to the fact that there was no minimal size of acquisition criterion. A target bank of a relatively large size when compared to the acquiring bank would provide an opportunity for a larger impact on returns, depending on the price of the target bank compared to its intrinsic value (i.e., the greater the discrepancy between the target's price and its value the greater the impact on the acquirer's abnormal returns). Desai and Stover (1985) found no significant change in the results of their bank merger study when the size of acquisition was considered.

In summary, the hypothesis that merger has no impact on stockholder wealth (per Percent Significant Test) cannot be rejected.

X. Runs Test

The results of the non-parametric runs test on the average abnormal returns by time (given in Table 10), and the standardized average abnormal returns by time (given in Table 11) are presented in Table 20. The number of runs in the average abnormal returns is fourteen producing a z-test

Table 19
Percent Significant Test of
Average Abnormal Returns for
Complete Sample by Bank

**Percentage of Banks with Significant
Positive Average Abnormal Returns**

0%

Standard Deviation

9.44907%

t-Test Statistic

-0.5291526

Table 20
Nonparametric Runs Test

	Average Abnormal Returns by Time	Standardized Average Abnormal Returns by Time
μ	14	16
μ_{μ}	13.32	13.00
σ_{μ}	2.4105877	2.3452078
z-Test Statistic	0.4895071	1.4924050
Percentile Rank	69th	93rd

statistic of 0.4895071. This result is placed at the sixty-ninth percentile (compared to the random average percentile rank placement of fiftieth).

The number of runs in the standardized average abnormal returns by time is sixteen producing a z-test statistic of 1.492405. This result is placed at the ninety-third percentile (compared to the random average percentile rank placement of fiftieth). The results of this non-parametric runs test of the standardized average abnormal returns by time indicate a definite pattern of signed standardized average abnormal returns. The standardized average abnormal returns are positive from time $t = -7$ to time $t = 0$ (except for time $t = -3$). However, this result is not significant at the $\alpha = .05$ level.

Therefore, the hypothesis that merger has no impact on stockholder wealth (per Runs Test on the average abnormal returns by time and the standardized average abnormal returns by time) cannot be rejected.

XI. Focus on Subperiod Results

There is an opportunity for bank acquirer stockholders to gain from merger in selected time periods. The nine tests of the impact of mergers on stockholder wealth show no statistical significance in the time period $t = -12$ to $t = +12$. But there is an indication, from the runs test on standardized average abnormal returns by time, that the time period $t = -7$ to $t = 0$ does provide gains from merger.

This section will reexamine the residuals of the banks in this study by conducting all nine tests of the impact of merger on stockholder wealth, but for the shorter time period seven months before and up to the merger approval date.

A. Subperiod Average Abnormal Return Test by Bank

Table 21 and Figure 12 contain the results for the subperiod average abnormal return test by bank. Observing the table and figure, one notes that there is only one bank (Bank #94) with a statistically significant abnormal return in this subperiod. Bank #94 had a negative 0.004970 average abnormal return. This return is not that negative, but when compared to its standard deviation of 0.000452 it results in a t-test statistic of negative 11.00350.

Other notable, but not statistically significant, bank returns are Bank #18 and Bank #3 with t-test statistics of negative 1.302430 and positive 1.126311 respectively. One limitation of this test for the subperiod is the small number of time periods (eight) causing the variances to be high. This makes it much more difficult to find statistically significant results.

The hypothesis that merger has no impact on stockholder wealth (per Subperiod Average Abnormal Return Test by Bank) cannot be rejected.

Table 21
Subperiod
Average Abnormal Returns by Bank

Bank	Average Abnormal Return	Standard Deviation of Abnormal Return	t-Test Statistic
1	+0.015611	+0.053625	+0.291125
2	-0.005680	+0.046658	-0.121760
3	+0.033088	+0.078937	+0.419175
4	-0.002850	+0.030713	-0.092920
5	+0.010448	+0.056856	+0.183772
6	+0.008659	+0.040271	+0.215022
7	+0.004361	+0.033579	+0.129895
8	-0.016570	+0.066878	-0.247820
9	-0.020270	+0.048209	-0.420600
10	+0.011691	+0.068784	+0.169969
11	+0.012764	+0.022847	+0.558669
12	+0.014339	+0.069471	+0.206407
13	+0.037542	+0.100076	+0.375139
14	+0.004121	+0.054080	+0.076207
15	+0.012155	+0.059704	+0.203593
16	+0.009240	+0.076585	+0.120657
17	-0.003000	+0.039682	-0.075670
18	-0.142280	+0.109248	-1.302430
19	+0.000936	+0.054168	+0.017281
20	+0.028038	+0.101334	+0.276690
21	-0.000260	+0.084649	-0.003070
22	-0.018880	+0.091005	-0.207540
23	+0.020286	+0.099131	+0.204646
24	+0.031664	+0.043881	+0.721584
25	+0.027890	+0.062976	+0.442880
26	+0.020306	+0.097246	+0.208817
27	-0.000710	+0.097262	-0.007310
28	-0.000000	+0.035627	-0.000080
29	+0.003414	+0.055552	+0.061463
30	+0.017969	+0.115565	+0.155493
31	+0.041929	+0.253215	+0.165587
32	-0.002010	+0.081950	-0.024580
33	+0.059963	+0.053238	+1.126311
34	+0.029161	+0.099519	+0.293020
35	-0.035250	+0.045497	-0.774770
36	+0.002880	+0.069115	+0.041680
37	+0.009313	+0.129509	+0.071916
38	-0.024360	+0.067132	-0.362990
39	-0.009400	+0.047164	-0.199410
40	+0.034239	+0.048063	+0.712363
41	+0.013442	+0.050490	+0.266230
42	+0.032038	+0.150859	+0.212373

Table 21 -- continued

Bank	Average Abnormal Return	Standard Deviation of Abnormal Return	t-Test Statistic
43	+0.031612	+0.041498	+0.761771
44	-0.005840	+0.073264	-0.079810
45	+0.042731	+0.127177	+0.335997
46	+0.024045	+0.109916	+0.218764
47	+0.011097	+0.058400	+0.190020
48	-0.046020	+0.105933	-0.434500
49	-0.013920	+0.063411	-0.219510
50	+0.014978	+0.110775	+0.135216
51	+0.006336	+0.068362	+0.092687
52	+0.009657	+0.141266	+0.068359
53	-0.017030	+0.098033	-0.173770
54	+0.020102	+0.128202	+0.156803
55	-0.011710	+0.119569	-0.097990
56	-0.012490	+0.057598	-0.216980
57	-0.006600	+0.042532	-0.155290
58	-0.001150	+0.054000	-0.021350
59	-0.022150	+0.034335	-0.645190
60	-0.018600	+0.033906	-0.548810
61	+0.032574	+0.080715	+0.403571
62	-0.003280	+0.032381	-0.101360
63	-0.012450	+0.109958	-0.113280
64	+0.015578	+0.017341	+0.898335
65	-0.015850	+0.059533	-0.266250
66	+0.000927	+0.047933	+0.019347
67	-0.021520	+0.026887	-0.800460
68	-0.059020	+0.064756	-0.911460
69	-0.011910	+0.059458	-0.200400
70	-0.054500	+0.064441	-0.845870
71	-0.007310	+0.033425	-0.218740
72	-0.007810	+0.073062	-0.106990
73	+0.001079	+0.043745	+0.024682
74	-0.007380	+0.086761	-0.085110
75	+0.005061	+0.032442	+0.156025
76	+0.002504	+0.052120	+0.048057
77	+0.028093	+0.036848	+0.762422
78	+0.004619	+0.058539	+0.078916
79	+0.001261	+0.126060	+0.010007
80	+0.019757	+0.045838	+0.431028
81	+0.002032	+0.040920	+0.049672
82	+0.008713	+0.122700	+0.071017
83	-0.010720	+0.037179	-0.288420
84	+0.007646	+0.061628	+0.124069
85	+0.027867	+0.104778	+0.265965
86	-0.013660	+0.045892	-0.297690

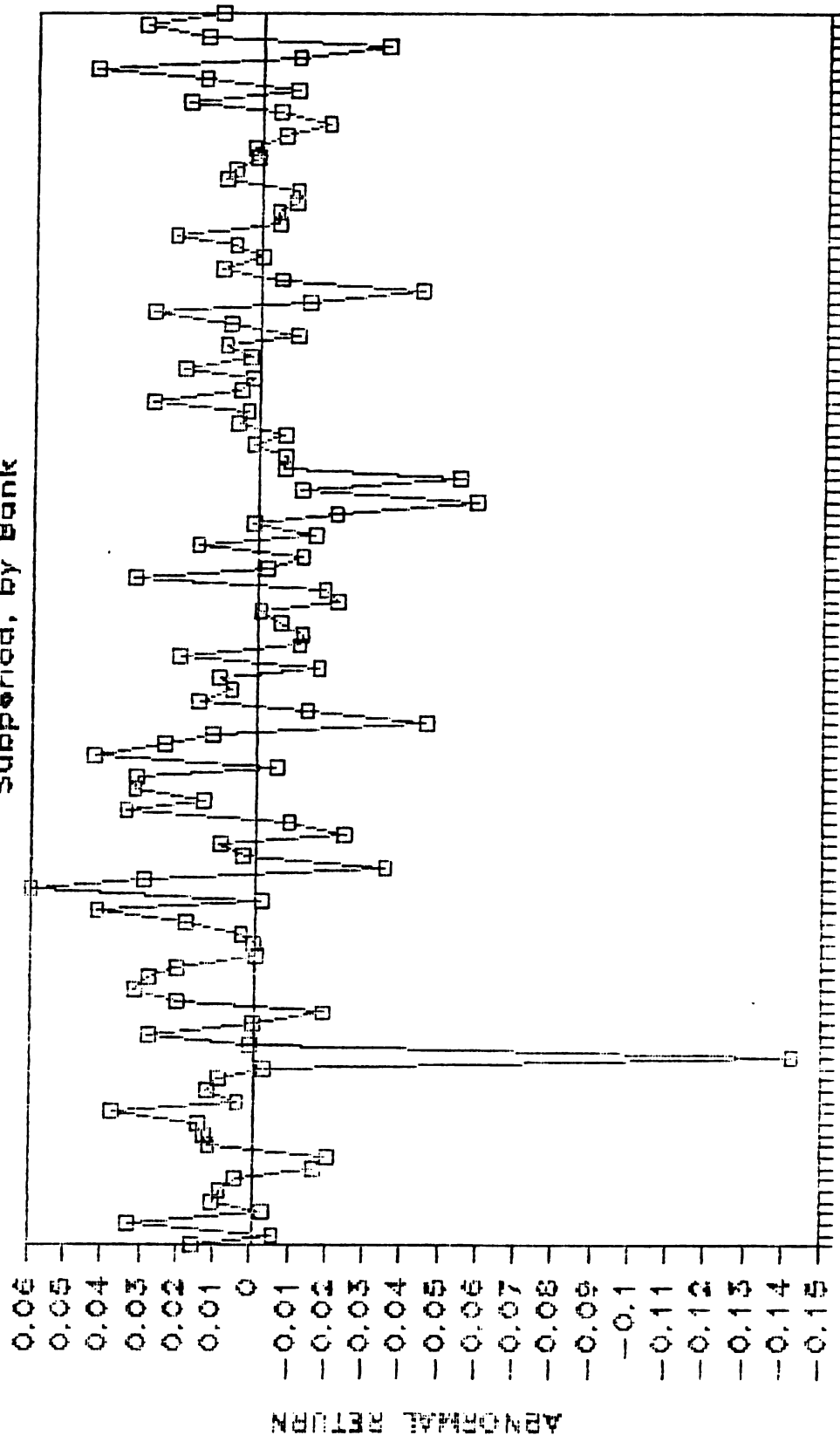
Table 21 -- continued

Bank	Average Abnormal Return	Standard Deviation of Abnormal Return	t-Test Statistic
87	-0.043930	+0.066386	-0.661810
88	-0.006250	+0.041371	-0.151100
89	+0.009876	+0.056349	+0.175272
90	-0.000630	+0.073642	-0.008630
91	+0.006374	+0.064597	+0.098681
92	+0.022270	+0.165396	+0.134651
93	-0.005100	+0.037008	-0.137840
94	-0.004970	+0.000452	-11.00350(*)
95	-0.009920	+0.040207	-0.246940
96	-0.010260	+0.058942	-0.174110
97	+0.009198	+0.104262	+0.088227
98	+0.006788	+0.105368	+0.064428
99	+0.000517	+0.017582	+0.029432
100	+0.001806	+0.042094	+0.042912
101	-0.006800	+0.071785	-0.094830
102	-0.018540	+0.103996	-0.178330
103	-0.005170	+0.058783	-0.088070
104	+0.018943	+0.030009	+0.631243
105	-0.009950	+0.068093	-0.146260
106	+0.014591	+0.074079	+0.196971
107	+0.043933	+0.077201	+0.569071
108	-0.010300	+0.074999	-0.137370
109	-0.034230	+0.050332	-0.680130
110	+0.014390	+0.064270	+0.223909
111	+0.030719	+0.057585	+0.533464
112	+0.010676	+0.035149	+0.303755

Significant (*) $\alpha = .01$

AVERAGE ABNORMAL RETURN

Subperiod, by Bank



BANK

FIGURE 12 -- SUBPERIOD AVERAGE ABNORMAL RETURN TEST BY BANK

B. Subperiod Positive Abnormal Returns by Bank

The results for the subperiod positive abnormal returns by bank test are presented in Table 22. There are six banks (Bank Numbers 33, 40, 64, 77, 80 and 93) with significant ($\alpha = .10$) positive abnormal returns, and seven banks (Bank Numbers 18, 35, 67, 68, 70, 87 and 94) with significant ($\alpha = .10$) negative abnormal returns (Bank Numbers 18, 70 and 94 are significant at $\alpha = .05$). These results are not that much different than what one would expect from chance. It was necessary to use the significance level of $\alpha = .10$ as there are only eight observations per bank.

The hypothesis that merger has no impact on stockholder wealth (per Subperiod Positive Abnormal Returns by Bank Test) cannot be rejected.

C. Subperiod Compounded Abnormal Return by Bank

The effect for each bank, at time $t = 0$, of the abnormal return compounded during the time period $t = -7$ to $t = 0$ expressed as a percentage is presented in Table 23 and Figure 13. These are descriptive statistics only, no statistical tests of significance were calculated. The range of the subperiod compounded abnormal return is negative 71.863% for Bank #18 to a positive 58.3318% for Bank #33.

D. Subperiod Average Abnormal Return by Time

Table 24 and Figure 14 presents the results for the subperiod average abnormal return by time test. The same

Table 22
Subperiod
Positive Abnormal Returns by Bank

Bank	Number of Positive Abnormal Monthly Return Periods
1	5
2	5
3	6
4	2
5	6
6	5
7	4
8	4
9	3
10	5
11	6
12	6
13	6
14	4
15	6
16	5
17	3
18	0**
19	5
20	5
21	4
22	4
23	5
24	6
25	6
26	6
27	3
28	5
29	4
30	3
31	6
32	5
33	7*
34	6
35	1*
36	4
37	4
38	2
39	4
40	7*

Significant

(*) $\alpha = .10$
(**) $\alpha = .05$

Table 22 -- continued

Bank	Number of Positive Abnormal Monthly Return Periods
41	5
42	5
43	6
44	2
45	5
46	4
47	3
48	2
49	4
50	4
51	5
52	4
53	3
54	5
55	3
56	3
57	3
58	3
59	3
60	2
61	5
62	4
63	3
64	7*
65	3
66	4
67	1*
68	1*
69	3
70	0**
71	2
72	3
73	4
74	4
75	3
76	3
77	7*
78	3
79	3
80	7*

Significant

(*) $\alpha = .10$ (**) $\alpha = .05$

Table 22 -- continued

Bank	Number of Positive Abnormal Monthly Return Periods
81	4
82	4
83	3
84	2
85	4
86	4
87	1*
88	4
89	5
90	5
91	4
92	5
93	7*
94	0**
95	3
96	4
97	4
98	5
99	2
100	4
101	3
102	2
103	3
104	6
105	3
106	5
107	6
108	2
109	2
110	5
111	6
112	5

Significant

(*) $\alpha = .10$ (**) $\alpha = .05$

Table 23
Subperiod
Compounded Abnormal Return by Bank

Bank	Compounded Return (as a %)
1	+12.3968
2	-4.9890
3	+27.9629
4	-2.4890
5	+7.8272
6	+6.7151
7	+3.2567
8	-13.5580
9	-15.6320
10	+8.4926
11	+10.5402
12	+10.7536
13	+31.3407
14	+2.6166
15	+9.1687
16	+6.0395
17	-2.7530
18	-71.8630
19	-0.0070
20	+21.8849
21	-2.1210
22	-16.1140
23	+14.6198
24	+27.7423
25	+23.4481
26	+14.7362
27	-2.8370
28	-0.3240
29	+1.9787
30	+11.7275
31	+17.8607
32	-3.2370
33	+58.3318
34	+23.0913
35	-25.3770
36	+1.1274
37	+3.6330
38	-18.8620
39	-7.8090
40	+30.2066
41	+10.5801
42	+22.2500
43	+27.7517
44	-5.8390

Table 23 -- continued

Bank	Compounded Return (as a %)
45	+34.6604
46	+17.5170
47	+8.3375
48	-33.4320
49	-11.5340
50	+9.4339
51	+3.9544
52	+2.4663
53	-14.9970
54	+12.6491
55	-12.1400
56	-10.3700
57	-5.5950
58	-1.6370
59	-16.6650
60	-14.2140
61	+27.2510
62	-2.8520
63	-12.2150
64	+13.0816
65	-12.8080
66	+0.1587
67	-16.1320
68	-39.2650
69	-9.9420
70	+36.9040
71	-5.9650
72	-7.3670
73	+0.3837
74	-7.5270
75	+3.8593
76	+1.3625
77	+24.4186
78	+2.9005
79	-2.5250
80	+16.3347
81	+1.2218
82	+3.1405
83	-8.5840
84	+5.3411
85	+21.4258
86	-10.9080
87	-31.0360
88	-5.3000
89	+7.3561
90	-1.8600

Table 23 -- continued

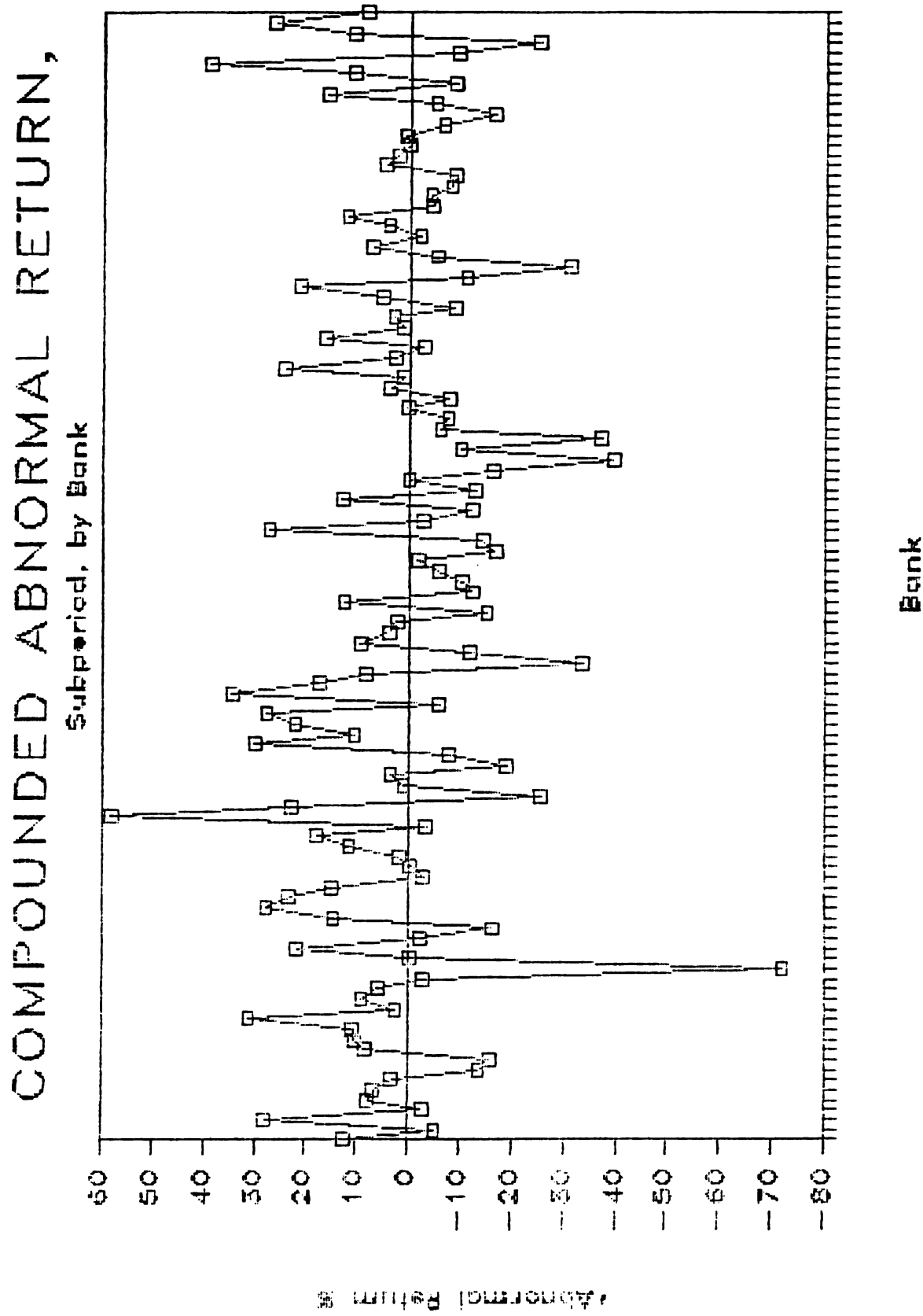
Bank	Compounded Return (as a %)
91	+4.1715
92	+12.0987
93	-4.3550
94	-3.9140
95	-8.0570
96	-8.7500
97	+4.7940
98	+2.4910
99	+0.3377
100	+1.0164
101	-6.4970
102	-16.2640
103	-4.8920
104	+15.9485
105	-8.7370
106	+10.7781
107	+39.1319
108	-9.2240
109	-24.8270
110	+10.9867
111	+26.3926
112	+8.5407

Table 24
Subperiod
Average Abnormal Return by Time

95 Time	Average Abnormal Return	Standard Deviation of Abnormal Return	t-Test Statistic
-7	+0.006355	+0.061747	+0.102933
-6	+0.001758	+0.059996	+0.029307
-5	+0.002592	+0.058201	+0.044551
-4	-0.000110	+0.072967	-0.001530
-3	-0.000400	+0.068474	-0.005870
-2	-0.000750	+0.065747	-0.011400
-1	+0.005299	+0.082507	+0.064236
0	+0.001482	+0.056507	+0.026229

95

Where $t = 0$ is the month the merger is approved by the Federal Reserve Board of Governors.



AVERAGE ABNORMAL RETURN,

Subperiod, by Time

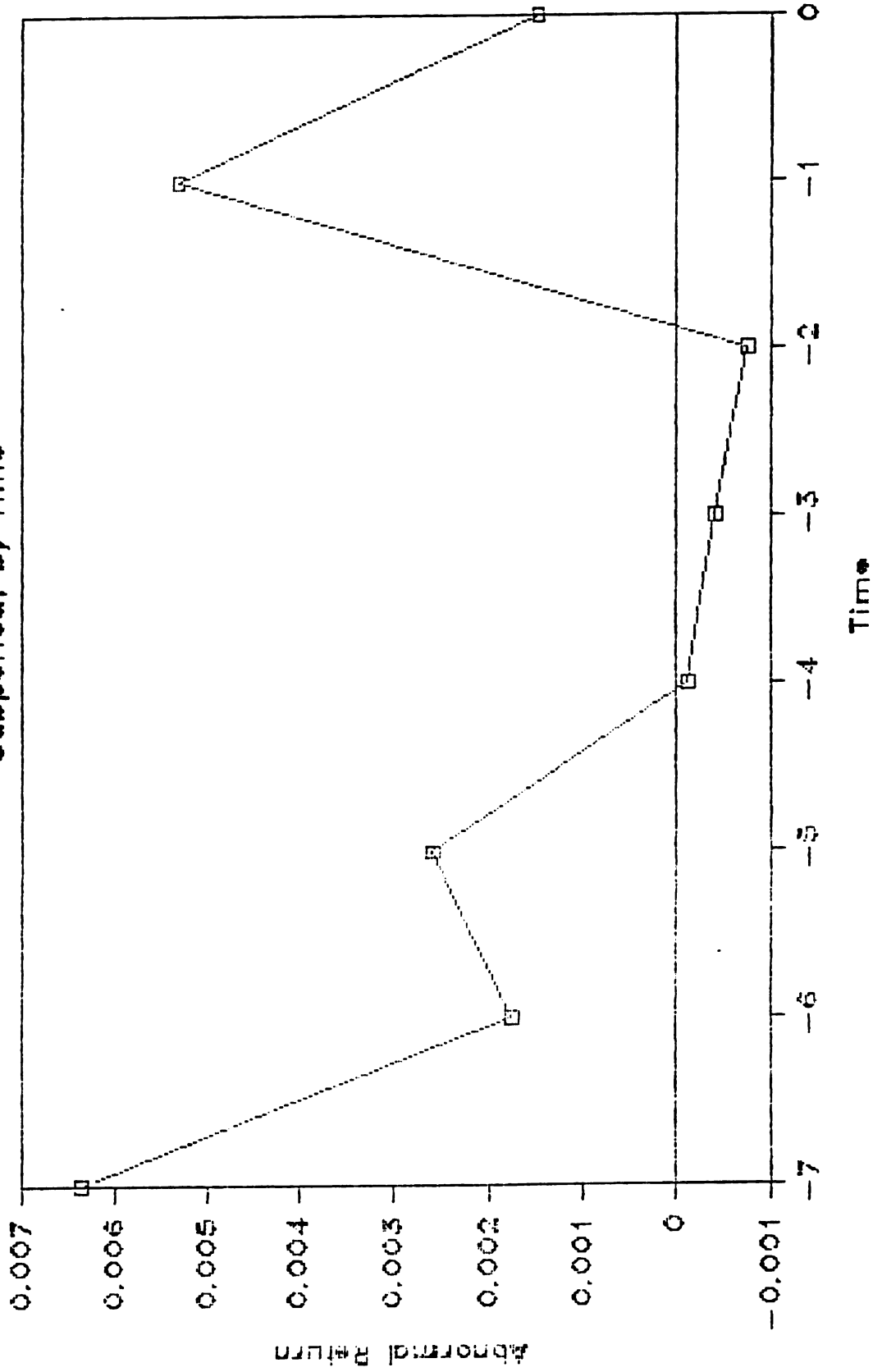


FIGURE 14 -- SUBPERIOD AVERAGE ABNORMAL RETURN BY TIME

data are imbedded in Table 10 and Figure 6. At no time period is the result, positive or negative, statistically significant. The range of the average abnormal return is positive 0.006355 (at time $t = -7$) to negative 0.000750 (at time $t = -2$). The average residuals are positive for the first three time periods, change to a negative average residual for the next three time periods and end as a positive average residual for the last time period.

The hypothesis that merger has no impact on stockholder wealth (per Subperiod Average Abnormal Return by Time Test) cannot be rejected.

E. Subperiod Standardized Average Abnormal Return by Time Test

The results for the subperiod standardized average abnormal return by time test are stated in Table 25 and Figure 15. The same data are imbedded in Table 11 and Figure 7. The standardized average abnormal return begins positive at $t = -7$ and remains positive for the entire subperiod except at time $t = -3$ where it is a negative 0.035150. This provides a strong indication that the merger provides positive benefits to acquirer stockholder returns during this subperiod. But at no time period are these returns statistically significant.

Therefore, the hypothesis that merger has no impact on stockholder wealth (per Subperiod Standardized Average Abnormal Return by Time Test) cannot be rejected.

Table 25
Subperiod
Standardized Average Abnormal
Return by Time

96 Time	Standardized Average Abnormal Return	Standard Deviation of Standardized Average Abnormal Return	t-Test Statistic
-7	+0.052599	+0.996282	+0.052795
-6	+0.010196	+0.908539	+0.011222
-5	+0.034230	+0.977928	+0.035002
-4	+0.046219	+1.047750	+0.044027
-3	-0.035150	+0.952866	-0.036880
-2	+0.036144	+0.881411	+0.041007
-1	+0.051923	+1.056464	+0.049148
0	+0.012007	+0.784222	+0.015311

96

Where $t = 0$ is the month the merger is approved by the Federal Reserve Board of Governors.

STD. AVG. ABNORMAL RETURN,

Subperiod, by Time

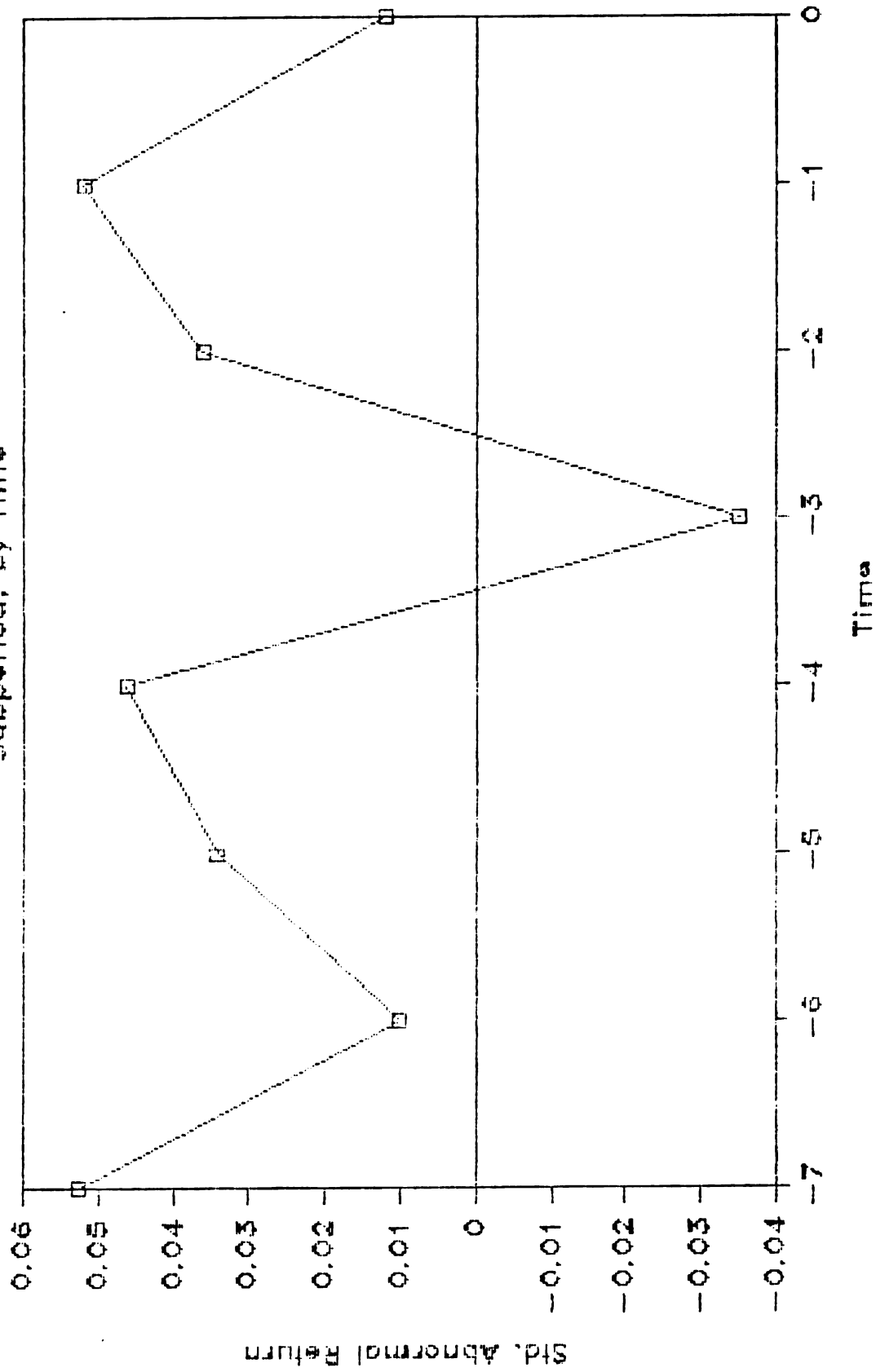


FIGURE 15 -- SUBPERIOD STANDARDIZED AVERAGE ABNORMAL RETURNS BY TIME

F. Subperiod Abnormal Returns by Time

A number of statistics were calculated on the portfolio of 112 acquirer bank stocks for the subperiod. These are for descriptive purposes only, no statistical tests were undertaken. This will help in the comparison of these results to other studies where other statistical measures were used.

i. Subperiod Cumulative Average Residual

Figure 16 and Table 26 show the subperiod CARs by time. The CAR starts positive at 0.006355 and stays positive for the entire subperiod until $t = 0$ where it ends at a positive 0.016226. The time periods $t = -7$ through $t = -5$ and the ending time periods $t = -1$ and $t = 0$ provide the large increases in the CAR statistic.

ii. Subperiod Standardized Cumulative Average Residual

Figure 17 and Table 26 show the subperiod standardized CARs by time. The standardized CAR begins at positive 0.052599 and increases every time period, except at time $t = -3$, until the end at $t = 0$ where it is positive 0.208168.

iii. Subperiod Compounded Abnormal Return

The subperiod compounded portfolio abnormal return at each time period is shown in Figure 18 and Table 27. This is the total compounded excess return of the portfolio calculated at each time period during the subperiod. The compounded return starts positive at 0.6355% and never turns

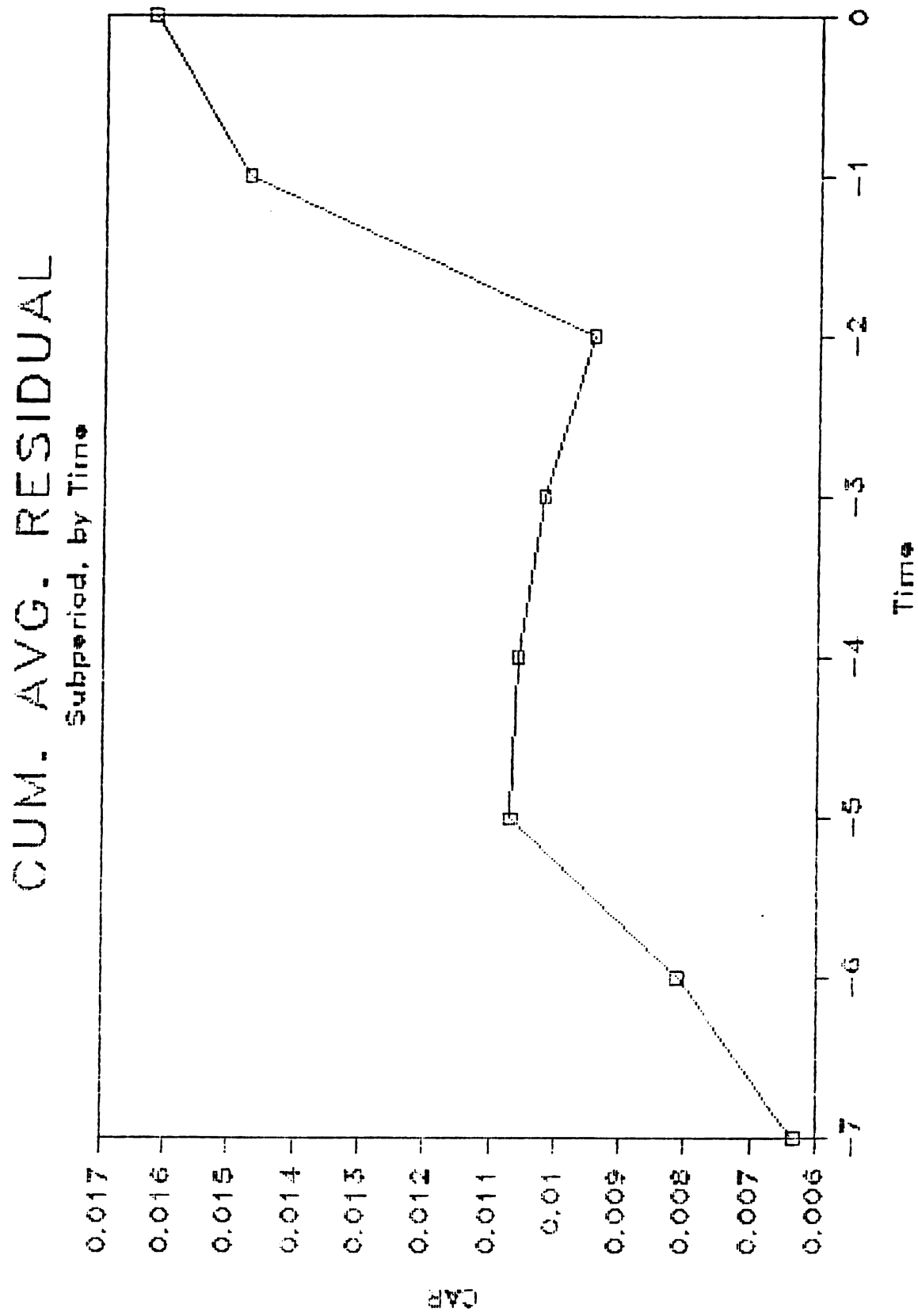


FIGURE 16 -- SUBPERIOD CUMULATIVE AVERAGE ABNORMAL RETURN BY TIME

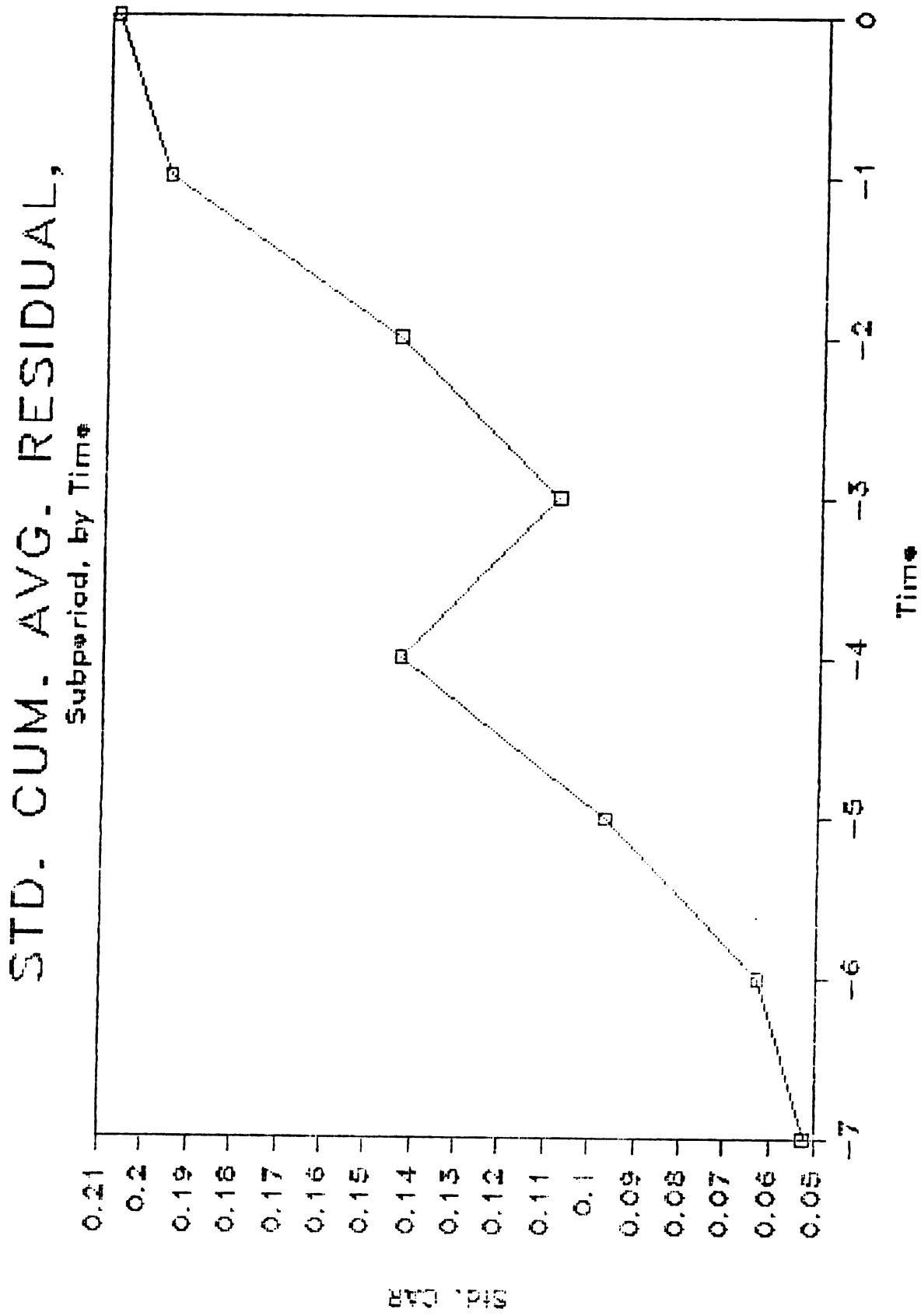


FIGURE 17 -- SUBPERIOD STANDARDIZED CUMULATIVE AVERAGE ABNORMAL RETURN BY TIME

COMPOUNDED RETURN

Subperiod, by Time

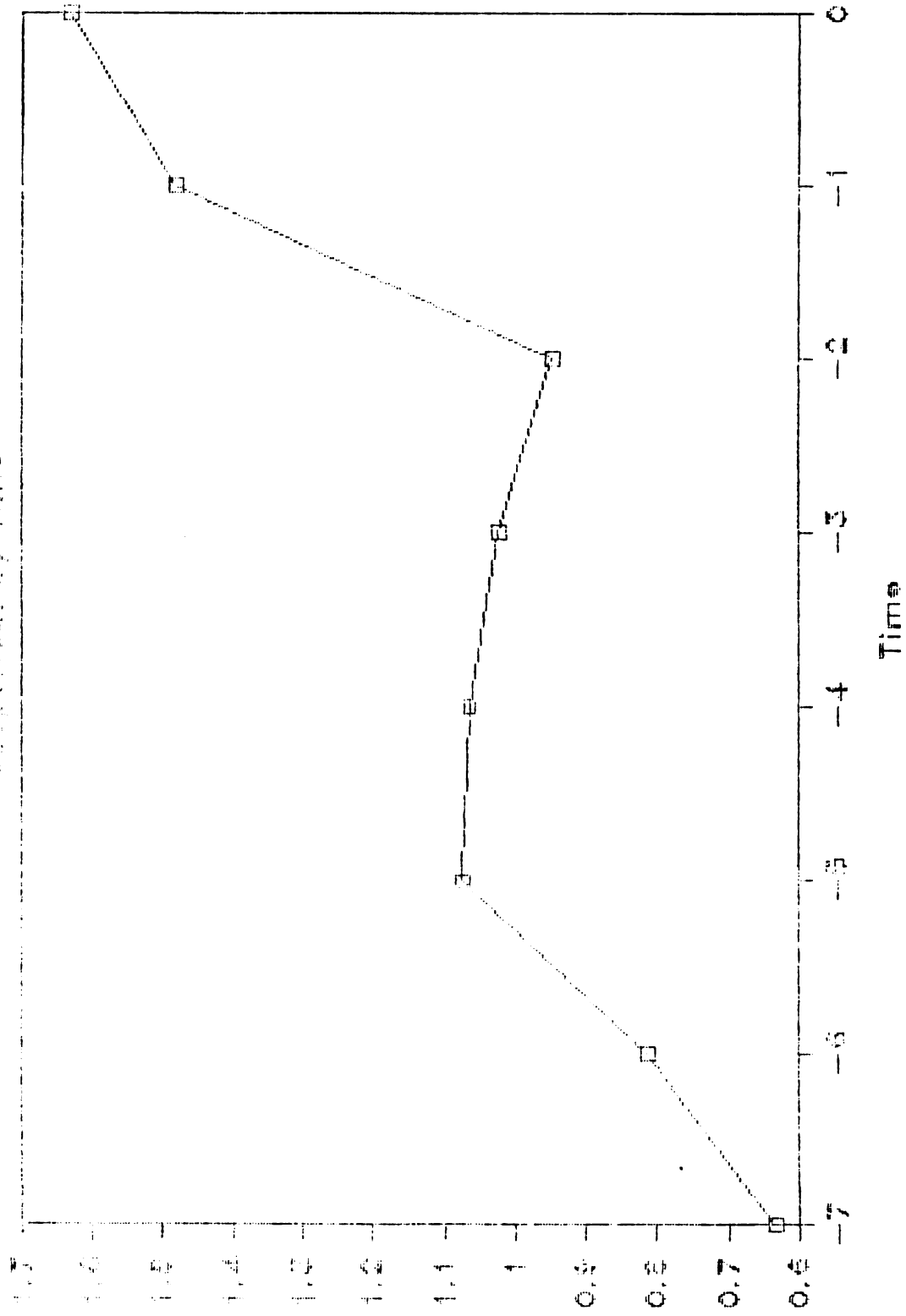


FIGURE 18 -- SUBPERIOD COMPOUNDED ABNORMAL RETURN BY TIME

Table 26
Subperiod
Cumulative Average Abnormal
Return by Time

97 Time	Cumulative Average Abnormal Return by Time	Standardized Cumulative Average Abnormal Return by Time
-7	+0.006355	+0.052599
-6	+0.008113	+0.062795
-5	+0.010705	+0.097025
-4	+0.010595	+0.143244
-3	+0.010195	+0.108094
-2	+0.009445	+0.144238
-1	+0.014744	+0.196161
0	+0.016226	+0.208168

97

Where $t = 0$ is the month the merger is approved by the Federal Reserve Board of Governors.

Table 27
Subperiod
Compounded Abnormal
Return by Time

⁹⁸ Time	Compounded Abnormal Return
-7	+0.0635500%
-6	+0.8124172%
-5	+1.0737230%
-4	+1.0626049%
-3	+1.0221798%
-2	+0.9464132%
-1	+1.4813283%
0	+1.6317236%

⁹⁸

Where $t = 0$ is the month the merger is approved by the Federal Reserve Board of Governors.

negative. A strong jump occurs at time $t = -1$ and it finishes at time $t = 0$ at a positive 1.6317236%.

iv. Subperiod Geometric Average Abnormal Return

The geometric average return of the residuals for the portfolio of 112 bank acquirers is calculated (at each time period during the subperiod), and is presented in Figure 19 and Table 28. The geometric average return begins high at 0.6355% and subsequently declines but never turns negative during the subperiod. It ends at a positive 0.2025241% at time $t = 0$.

G. Subperiod Percent Positive of Abnormal Returns by Time Test

The results of the percent positive of abnormal returns by time test are presented in Table 29. The same data is imbedded in Table 17. The number of banks with positive abnormal returns is at least fifty percent in each time period except $t = -4$, $t = -3$ and $t = -1$. In time period $t = -4$ the negative result is statistically significant at $\alpha = .05$ level.

The hypothesis that merger has no impact on stockholder wealth (per Subperiod Percent Positive of Abnormal Returns by Time Test) cannot be rejected.

H. Subperiod Percent Positive Test of Average Abnormal Returns for the Complete Sample by Bank

The results of the subperiod percent positive test of average abnormal returns for the complete sample by bank are presented in Table 30. The percentage of acquirers with

GEOMETRIC RETURN

Subperiod, by Time

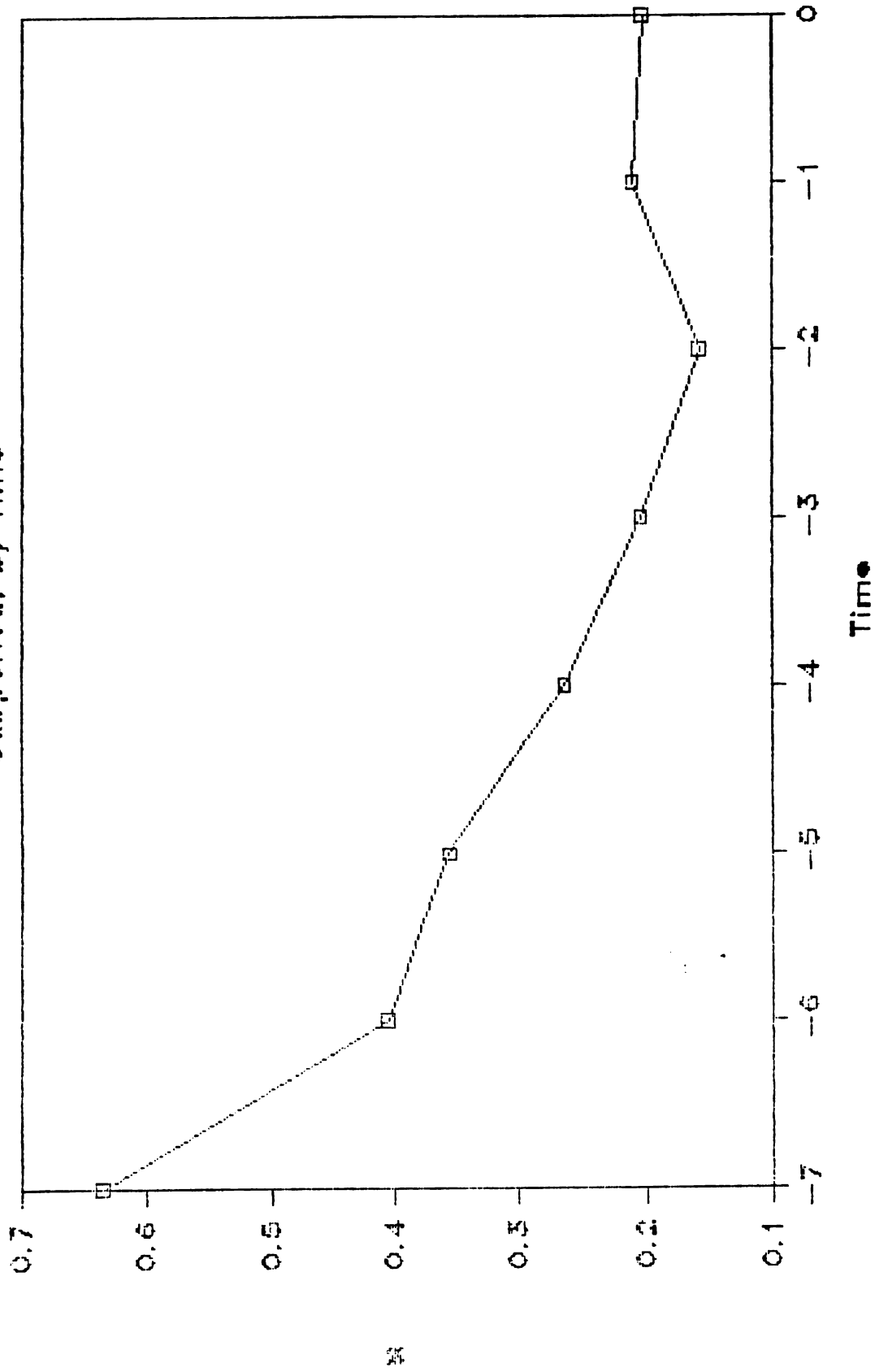


FIGURE 19 -- SUBPERIOD GEOMETRIC AVERAGE RETURNS % AT TIME t

Table 28
Subperiod
Geometric Average Return at Time t

⁹⁹ Time	Geometric Average Return
-7	+0.6355000%
-6	+0.4053869%
-5	+0.3566343%
-4	+0.2645992%
-3	+0.2036052%
-2	+0.1571171%
-1	+0.2102870%
0	+0.2025241%

⁹⁹

Where $t = 0$ is the month the merger is approved by the Federal Reserve Board of Governors.

Table 29
Subperiod
Percent Positive of Abnormal Returns by Time

Time	Percent Positive of Abnormal Returns
100	
-7	50.89%
-6	50.00%
-5	50.00%
-4	40.18%*
-3	47.32%
-2	52.68%
-1	48.21%
0	52.68%

100

Where $t = 0$ is the month the merger is approved by the Federal Reserve Board of Governors.

*Significant at $\alpha = .05$.

Table 30
Subperiod
Percent Positive Test of Average Abnormal Returns
for the Complete Sample by Bank

Percent Positive of Average Abnormal Returns
for the Complete Sample by Bank

56.25%

Standard Deviation

4.6875%

t-Test Statistic

+1.33333333

positive average abnormal returns was 56.25%. This is significant at an alpha level of 20% (two-sided test) as the t-test statistic is positive 1.33333333.

The hypothesis that merger has no impact on stockholder wealth (per Subperiod Percent Positive Test of Average Abnormal Returns for the Complete Sample by Bank) cannot be rejected.

I. Subperiod Percent Significant Test

The subperiod percent significant test results are given in Table 31. The percentage of banks with significant positive average abnormal returns was zero. This produced a t-test statistic of negative 0.5291526. Bank #94 providing a negative significant return is ignored in this test.

The hypothesis, that merger has no impact on stockholder wealth (per Subperiod Percent Significant Test) cannot be rejected.

J. Subperiod Runs Test

The results of the non-parametric subperiod runs test on the average abnormal returns by time (given in Table 24), and the standardized average abnormal returns by time (given in Table 25) are presented in Table 32. The number of runs in the average abnormal returns for the subperiod is three producing a z-test statistic of 1.86. This result is significant at the five percent level (one-sided test). The

Table 31
Subperiod
Percent Significant Test of Average Abnormal
Returns for the Complete Sample by Bank

**Percentage of Banks with Significant
Positive Average Abnormal Returns**

0%

Standard Deviation

9.44907%

t-Test Statistic

-0.5291526

Table 32
Subperiod
Nonparametric Runs Test

	Average Abnormal Returns by Time	Standardized Average Abnormal Returns by Time
μ	3	3
μ_{μ}	4.75	2.75
σ_{μ}	1.21	0.433
z-Test Statistic	1.86*	1.73*
Percentile Rank	97th	96th

Significant (*) at $\alpha = .05$ level (one-sided test)

results of this runs test of the average abnormal returns by time show a definite pattern of signed average abnormal returns.

The number of runs in the standardized average abnormal returns by time is three producing a z-test statistic of 1.73. This result is significant at the five percent level. The results of this runs test of the standardized average abnormal returns by time indicate a definite pattern of signed standardized average abnormal returns.

Therefore, the hypothesis that merger has no impact on stockholder wealth (per Subperiod Runs Test on the average abnormal returns by time and the standardized average abnormal returns by time) cannot be accepted.

XII. Mergers by Year

The results of Table 33 are presented as descriptive data only. This table shows the number of mergers in the sample by year (the "year" is the merger approval date) from 1968-83 and the number of mergers per year which resulted in a positive average abnormal return. Due to the small number of mergers in each year, a non-parametric signs test of significant results would only be able to be calculated on a partial number of years. Therefore, no statistical tests were conducted. When observing the number of mergers (in the sample) column, the evidence suggests that the number of mergers was approximately constant during the 1968-79

Table 33
Mergers by Year

Year	Number of Mergers in Sample (Approval Date Year)	Number with Positive Average Abnormal Return (Majority Positive (*))
1968	6	2
1969	4	1
1970	8	2
1971	4	2
1972	3	2*
1973	3	0
1974	5	1
1975	3	2*
1976	3	3*
1977	6	4*
1978	9	4
1979	7	2
1980	13	9*
1981	9	4
1982	13	7*
1983	16	10*

Table 33
Mergers by Year

Year	Number of Mergers in Sample (Approval Date Year)	Number with Positive Average Abnormal Return (Majority Positive (*))
1968	6	2
1969	4	1
1970	8	2
1971	4	2
1972	3	2*
1973	3	0
1974	5	1
1975	3	2*
1976	3	3*
1977	6	4*
1978	9	4
1979	7	2
1980	13	9*
1981	9	4
1982	13	7*
1983	16	10*

period. Then in 1980, the number of mergers per year increased. This increase coincides with the deregulation of the banking industry. The times when the number of mergers with positive abnormal returns becomes the majority of mergers in that particular year appears to be more frequent in the recent time periods versus the earlier years in this study. A possible reason may be that antitrust objectives to mergers, once very strong, have diminished tremendously over time.

XIII. Volatility of Returns by Bank

The results of the comparison of the volatility of abnormal returns by bank between the estimation period (time $t = -72$ to $t = -13$), and the test period (time $t = -12$ to $t = +12$) are presented in Table 34 and Figures 20 and 21. An F-test statistic was calculated to check for significant differences between the variance of abnormal returns for the estimation period and the variance of abnormal returns for the test period.

There were twenty-five acquirer banks that experienced a significant increase (at the $\alpha = .05$ level) in the variance of abnormal returns in the test period compared to the estimation period. These banks were Bank Numbers 3, 8, 11, 21, 23, 41, 42, 45, 48, 49, 50, 51, 53, 56, 67, 73, 77, 85, 92, 95, 96, 97, 98, 102, and 111.

There were seventeen acquirer banks that experienced a significant decrease (at the $\alpha = .05$ level) in the variance

Table 34
Volatility of Returns by Bank

Bank	Variance of Abnormal Returns, Test Period	Variance of Abnormal Returns, Estimation Period	F-Test Statistic
1	0.003540	0.003969	0.891978
2	0.005289	0.004624	1.143816
3	0.003507	0.001600	2.101898
4	0.003456	0.004121	0.838683
5	0.001318	0.002652	0.497036
6	0.002903	0.003516	0.825796
7	0.001609	0.002171	0.741389
8	0.002868	0.001176	2.438089
9	0.002068	0.016027	0.129067
10	0.002015	0.005256	0.383429
11	0.003778	0.002007	1.882695
12	0.003226	0.004316	0.747591
13	0.004943	0.008118	0.608993
14	0.001572	0.002361	0.665975
15	0.002907	0.014161	0.205339
16	0.002096	0.001980	1.058594
17	0.001533	0.002693	0.569184
18	0.020382	1.685582	0.012092
19	0.002581	0.003660	0.705375
20	0.006175	0.005329	1.158879
21	0.003038	0.001482	2.049911
22	0.003367	0.002190	1.537440
23	0.005711	0.002714	2.104140
24	0.005211	0.009840	0.529593
25	0.004394	0.003588	1.224692
26	0.003327	0.002450	1.357895
27	0.004001	0.006512	0.614399
28	0.001856	0.001528	1.214335
29	0.003714	0.003113	1.192835
30	0.005336	0.003306	1.614196
31	0.015150	0.013806	1.097338
32	0.002213	0.005867	0.377226
33	0.006079	0.007140	0.851498
34	0.004584	0.004610	0.994359
35	0.003567	0.003528	1.011232
36	0.004165	0.003660	1.138095
37	0.006724	0.003624	1.855467
38	0.002684	0.003540	0.758229
39	0.004426	0.003956	1.118820
40	0.002257	0.001482	1.523179
41	0.003890	0.001624	2.395366

Table 34 -- continued

Bank	Variance of Abnormal Returns, Test Period	Variance of Abnormal Returns, Estimation Period	F-Test Statistic
42	0.008403	0.003014	2.788278
43	0.003382	0.003856	0.877127
44	0.005163	0.006480	0.796868
45	0.034887	0.001980	17.61797
46	0.006335	0.005461	1.163694
47	0.003193	0.001705	1.872330
48	0.019979	0.010404	1.920398
49	0.009417	0.004395	2.142484
50	0.008234	0.003113	2.644656
51	0.008823	0.001398	6.308682
52	0.009090	0.009389	0.968152
53	0.004170	0.001840	2.265865
54	0.016984	0.012365	1.373568
55	0.004574	0.002756	1.659666
56	0.003494	0.001406	2.485347
57	0.003035	0.005929	0.512031
58	0.000900	0.002992	0.300829
59	0.002387	0.011299	0.211327
60	0.006583	0.005715	1.151925
61	0.003355	0.013133	0.255481
62	0.003779	0.002352	1.606732
63	0.005240	0.003552	1.475351
64	0.001482	0.001169	1.267709
65	0.001190	0.003576	0.332980
66	0.001505	0.001156	1.302687
67	0.003499	0.001624	2.154577
68	0.005286	0.004238	1.247288
69	0.003096	0.001772	1.747182
70	0.005661	0.003794	1.492052
71	0.001426	0.002894	0.492792
72	0.003149	0.003306	0.952614
73	0.001598	0.000552	2.894615
74	0.006177	0.003340	1.849202
75	0.000681	0.000829	0.821697
76	0.001129	0.002724	0.414532
77	0.007988	0.003433	2.326500
78	0.003044	0.002520	1.208163
79	0.007009	0.004395	1.594666
80	0.004856	0.003422	1.419014
81	0.001108	0.001528	0.725158
82	0.007043	0.008100	0.860579
83	0.002085	0.001681	1.240587

Table 34 -- continued

Bank	Variance of Abnormal Returns, Test Period	Variance of Abnormal Returns, Estimation Period	F-Test Statistic
84	0.004085	0.003317	1.231289
85	0.005391	0.001918	2.810360
86	0.001381	0.004044	0.341565
87	0.002777	0.004678	0.593731
88	0.000724	0.001303	0.556320
89	0.001674	0.004610	0.363140
90	0.001983	0.003588	0.552793
91	0.002108	0.002052	1.027365
92	0.009463	0.002256	4.194338
93	0.001970	0.001361	1.447462
94	0.000158	0.000484	0.326827
95	0.005026	0.001862	2.699222
96	0.008855	0.002199	4.026059
97	0.003046	0.001095	2.780394
98	0.006264	0.001156	5.419471
99	0.000342	0.000973	0.351387
100	0.002361	0.001892	1.248144
101	0.001669	0.003721	0.448700
102	0.003354	0.001354	2.477231
103	0.002149	0.001324	1.622196
104	0.001741	0.007779	0.223850
105	0.011232	0.013479	0.833340
106	0.004120	0.004830	0.852996
107	0.006215	0.016078	0.386557
108	0.004124	0.003113	1.324676
109	0.001894	0.001428	1.326178
110	0.003119	0.003192	0.977147
111	0.003014	0.001466	2.055042
112	0.002001	0.003445	0.580986

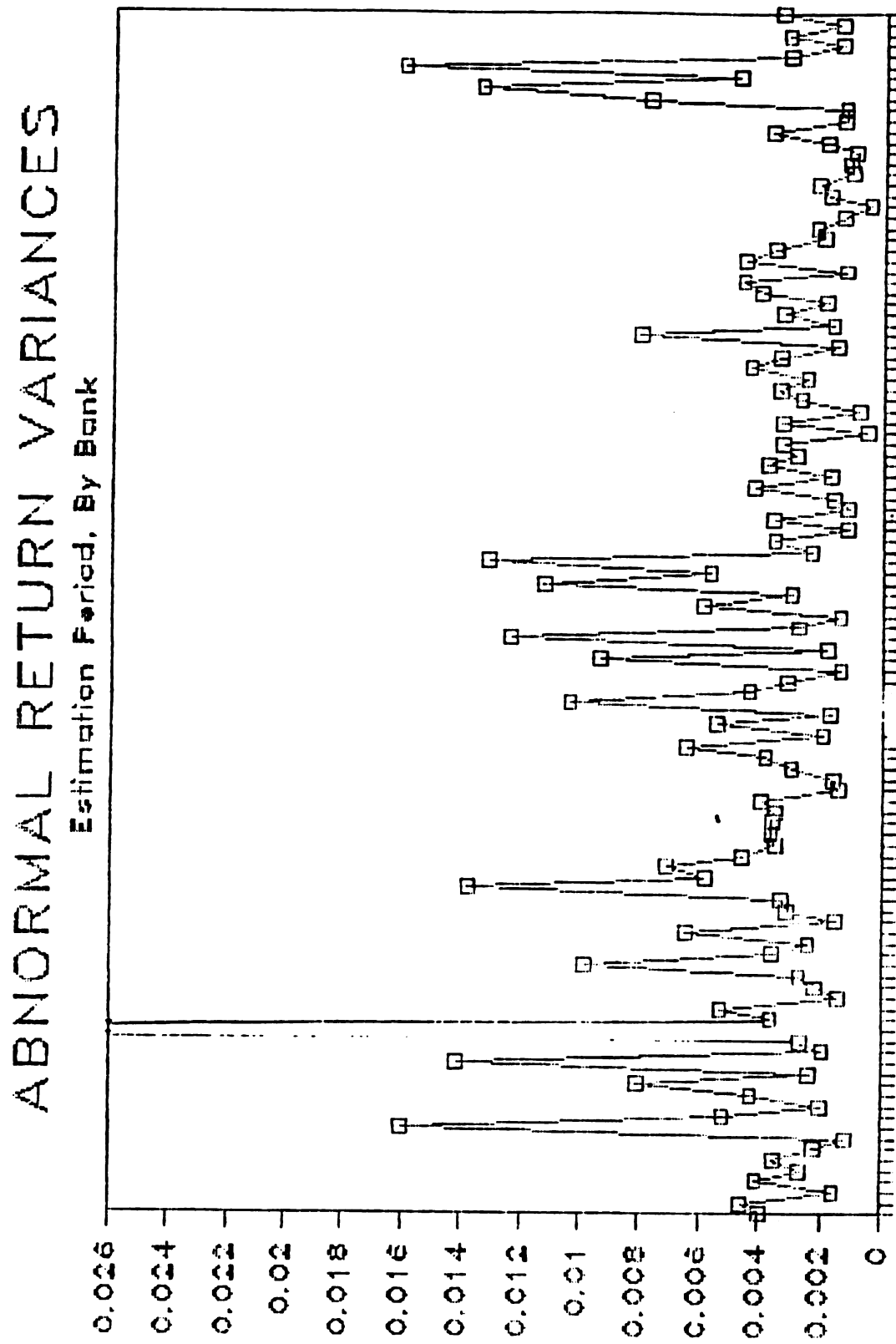


FIGURE 20 -- VARIANCE OF ABNORMAL RETURNS BY BANK, ESTIMATION PERIOD

ABNORMAL RETURN VARIANCES

Test Period, By Bank

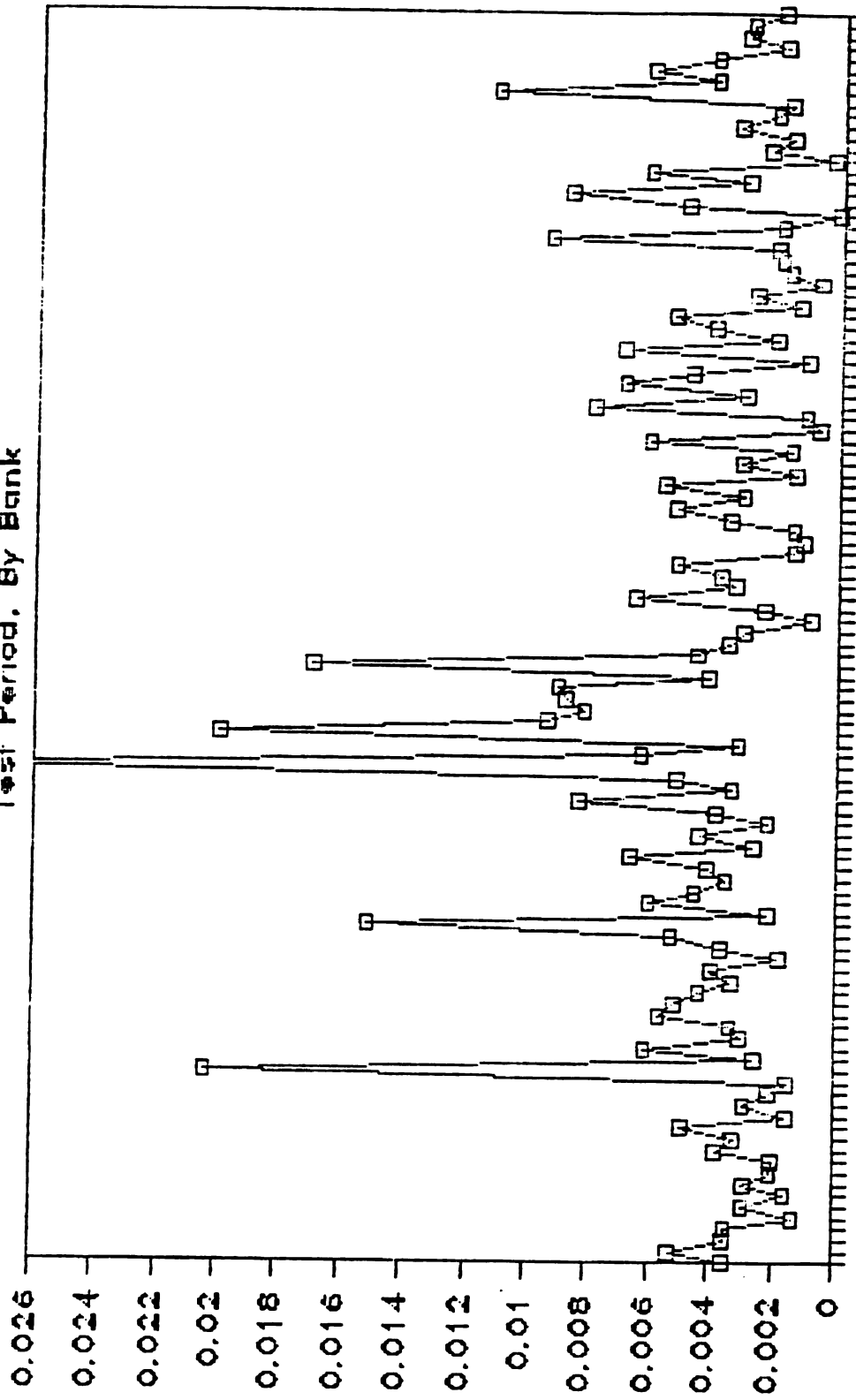


FIGURE 21 -- VARIANCE OF ABNORMAL RETURNS BY BANK, TEST PERIOD

of abnormal returns in the test period compared to the estimation period. These banks were Bank Numbers 9, 10, 15, 18, 32, 58, 59, 61, 65, 76, 86, 89, 94, 99, 101, 104, and 107. Figure 20 shows one outlier (Bank #18), compared to the other banks in the sample, with a high variance of abnormal returns in the estimation period.

No statistical test of the riskiness of the residuals on the complete sample of acquirer banks in this merger study can be conducted, only on the individual acquirer banks. In view of the results of the individual F-tests stated above, the effect of merger on the variance of abnormal returns appears to be inconclusive.

XIV. Regression Statistics

Information on the regression equation statistics is presented in Table 35. The median, mean and standard of the regression coefficients (a_i , $B_{i,m}$, and $B_{i,B}$) are given in addition to the same descriptive statistics for the adjusted R^2 . The mean adjusted R^2 for the 112 acquirer bank stocks of 0.216784 compares favorably to other stock return studies.

Table 35
Regression Equations

	<u>Coefficients</u>			Adjusted
	a_i	$B_{i,m}$	$B_{i,B}$	R^2
Median	0.004360	0.027670	0.511150	0.161915
Mean	0.006485	-0.006661	0.507665	0.216784
Standard Deviation	0.017783	0.503226	0.537309	0.213016

CHAPTER SEVEN

SUMMARY AND CONCLUSIONS

The purpose of this dissertation was to examine the effect of commercial bank acquisitions on BHC stockholder wealth.

Bank mergers were identified from the Federal Register, Federal Reserve Bulletin and the Mergers and Acquisitions Journal. Monthly stock return data were gathered from several sources including the Bank and Quotation Record; Moody's Dividend Record; Standard and Poor's Dividend Record; CRSP Tapes; and Compustat Tapes. The period of study was all bank mergers occurring during 1968-83. The sample size was 112 after passing all the mergers through two screening criteria (isolated mergers and stock return data available for a 7 year period surrounding the merger approval date).

A three-factor market model, adjusting for general stock market risk and industry risk, was employed. The three-factor market model parameters were estimated for acquirer banks during a pre-merger period. Then the estimated pre-merger parameters were extrapolated to a post-merger period. Deviations of the actual post-merger returns

from the expected returns were abnormal returns attributed to the merger.

I. Test Period Returns

A summary of the statistical tests for the test period twelve months before to twelve months after the merger, conducted to assess the hypothesis that merger has no impact on stockholder wealth, follows:

1. Average Abnormal Return Test by Bank. None of the acquirer banks had statistically significant positive or negative abnormal returns.
2. Positive Abnormal Returns Test by Bank. Five acquirer banks had significantly positive abnormal returns whereas nine acquirer banks had significantly negative abnormal returns.
3. Average Abnormal Return by Time Test. None of the monthly time periods in the test period (one year before and after the merger approval date) provided significant positive or negative abnormal returns.
4. Standardized Average Abnormal Return by Time Test. None of the monthly standardized abnormal returns in the test period were significantly positive or negative.
5. Percent Positive of Abnormal Returns by Time Test. None of the time periods were significantly positive or negative except at time $t = -4$ which is significantly negative.

6. Percent Positive Test of Average Abnormal Returns for the Complete Sample by Bank. The results of this test were not significant, positive or negative.
7. Percent Significant Test. No significantly positive or negative results.
8. Runs Test, on the average abnormal returns by time. This test showed no statistically significant results.
9. Runs Test, on the standardized average abnormal returns by time. At a significance level of $\alpha = .05$, this test was not significant but the runs test mean was placed at the 93rd percentile rank. Observing the standardized residuals by time one sees that they were positive from $t = -7$ to $t = 0$ (except for time $t = -3$). This result suggests that acquirer banks may enjoy positive standardized abnormal returns from (approximately) the merger announcement date through to the merger approval date. This result is discussed further in the conclusions.

A summary of results for the test period ($t = -12$ to $t = +12$) is also shown in Table 36.

II. Subperiod Returns

There is an opportunity for bank acquirer stockholders to gain from merger in the subperiod from $t = -7$ to $t = 0$.

Table 36
Summary of Results
 Test Period ($t = -12$ to $t = +12$)

Test	Result	Statistical Significance
1. Average Abnormal Return by Bank	-0.01899%	None
2. Positive Abnormal Returns by Bank	5 positive 9 negative 98 insignificant	None
3. Average Abnormal Return by Time	-0.08509%	None
4. Standardized Average Abnormal Return by Time ¹⁰¹	-1.123192%	None
5. Percent Positive by Time	13 positive 12 negative	None
6. Percent Positive by Bank for Complete Sample	49.10714%	None
7. Percent Significant	0	None
8. Runs by Time	14	None
9. Runs (Standardized) by Time	16	$\alpha = .07$ (one-sided test)

101

Percentage reported, where one standard deviation is
 one-hundred percent.

The nine tests of the impact of mergers on stockholder wealth in the subperiod before the approved merger date shows the following:

1. Subperiod Average Abnormal Return Test by Bank. Only one bank had a statistically significant (negative) abnormal return.
2. Subperiod Positive Abnormal Returns Test by Bank. Six acquirer banks had significantly ($\alpha = .10$) positive abnormal returns whereas seven acquirer banks had significantly negative abnormal returns (four acquirers significant at $\alpha = .05$).
3. Subperiod Average Abnormal Return by Time Test. None of the monthly time periods in the subperiod provided significant positive or negative abnormal returns.
4. Subperiod Standardized Average Abnormal Return by Time Test. None of the monthly standardized abnormal returns in the subperiod were significantly positive or negative.
5. Subperiod Percent Positive of Abnormal Returns by Time Test. None of the time periods were significantly positive or negative except at time $t = -4$ which is significantly negative.
6. Subperiod Percent Positive Test of Average Abnormal Returns for the Complete Sample by Bank. The results of this test were positive at an alpha level of ten

percent. That is, the hypothesis that merger has no impact on stockholder wealth cannot be accepted.

7. Subperiod Percent Significant Test. No significantly positive or negative results.
8. Subperiod Runs Test, on the average abnormal returns by time. The results of this test were statistically significant ($\alpha = .05$). That is, the sequence of signed abnormal returns provides a time period where merger does have an impact on stockholder wealth.
9. Subperiod Runs Test, on the standardized average abnormal returns by time. This test provided similar results as the previous test. At a significance level of $\alpha = .05$, the results of this test were positive. That is, the hypothesis that merger has no impact on stockholder wealth cannot be accepted.

A summary of results for the subperiod ($t = -7$ to $t = 0$) is also shown in Table 37.

III. Change In Volatility

In the investigation of the change in volatility of abnormal returns, between the estimation period ($t = -72$ to $t = -13$) and the test period ($t = -12$ to $t = +12$), the evidence was mixed. The variance of sixty-five banks increased during the test period, when compared to the estimation period, as opposed to the variance of forty-seven banks decreasing.

At a significance level of alpha equal to five percent the variance of twenty-five banks increased in the test

Table 37
Summary of Results
 Subperiod (t = -7 to t = 0)

Test	Result	Statistical Significance
1. Average Abnormal Return by Bank	0.01448% 1 negative	None
2. Positive Abnormal Returns by Bank	6 positive 3 negative 4 negative 99 insignificant	$\alpha = .10$ $\alpha = .10$ $\alpha = .05$
3. Average Abnormal Return by Time	+2.0282%	None
4. Standardized Average Abnormal Return by Time ¹⁰²	+2.6021%	None
5. Percent Positive by Time	5 positive 3 negative	None
6. Percent Positive by Bank for Complete Sample	56.25%	$\alpha = .10$ (one-sided)
7. Percent Significant	0	None
8. Runs by Time	3	$\alpha = .05$ (one-sided)
9. Runs (Standardized) by Time	3	$\alpha = .05$ (one-sided)

102

Percentage reported, where one standard deviation is one-hundred percent.

period, when compared to the estimation period, versus the variance of seventeen banks decreasing.

IV. Impact of Merger on Stockholder Wealth

Answering the question, "Do mergers increase stockholder wealth?", the pattern of merger abnormal returns (for the time period [subperiod] seven months prior to and through to the merger approval date) was found to be significant. This result provides support for the maximization of stockholder wealth motive to merge, and is consistent with Langetieg (1978) who found merger study results dependent on the time period chosen. The common stock of the acquirer BHC portfolio increased by a standardized cumulative average abnormal return of 2.08168% during the subperiod. This gain indicates that the merger increases stockholder wealth. However, the magnitude of the gain is not significant. This conclusion suggests that the merger market to acquire banks is highly competitive and that potential significant stockholder wealth gains vanish when competing acquirer banks bid for a target bank.

Therefore, the hypothesis that merger has no impact on stockholder wealth cannot be accepted.

V. Suggestions For Further Research

Suggestions for further research include: (1) An examination of bank holding company acquisitions solely after the bank industry deregulation date, (2) The effects

of state reciprocity laws creating inter-state banking and inter-regional banking, (3) the analysis of returns to the acquirer could be based on a public announcement date rather than regulatory approval date, and (4) The examination of merger motives for specific bank holding companies, analyzed by techniques such as cluster analysis and logit, other than stockholder wealth maximization, for example, matching of financial characteristics.

APPENDIX

APPENDIX A
Table A-1

<u>ACQUISITIONS (ACQUIRER/ACQUIRED)</u>	<u>DATE</u>
1. Northwest Bancorporation/ First National Bank of Ely	January 1968
2. Wells Fargo Bank/ Bank of Pasadena, California	March 1968
3. Merrill Trust Company/ Hammond State Trust Company Bangor	June 1968
4. Bankers Trust Company/ Northern Westchester National Bank	October 1968
5. Chemical Bank/ Chemical Bank of New York Trust Company	November 1968
6. First Pennsylvania Bank and Trust Company/ Chestnut State Trust Company	December 1968
7. Marine Midland Bank/ Tinker National Bank of East Setauket, New York	April 1969
8. Trust Company of Georgia/ Atlanta Bank and Trust	September 1969
9. Walker Bank and Trust Company/ First National Bank of Coalville	October 1969
10. Connecticut Bank and Trust Company/ Tradesmen National Bank of New Haven	November 1969
11. Peoples-Liberty Bank and Trust Company/ Bank of Independence	January 1970
12. Seattle Trust and Savings Bank/ Cle Elum State Bank	January 1970

- | | | |
|-----|---|----------------|
| 13. | Grace State Bank/
Southern Bank and Trust | March 1970 |
| 14. | Bank of New Orleans and Trust
Company/
Bank and Trust Company of Greater
New Orleans | April 1970 |
| 15. | Union Trust Company of Maryland/
Metro National Bank of Maryland | September 1970 |
| 16. | Houston Bank and Trust Company/
Citizens Bank | September 1970 |
| 17. | Bank of Delaware/
Millsboro Trust Company | September 1970 |
| 18. | Long Island Trust Company/
Seaside Bank | November 1970 |
| 19. | Marine Corporation/
Farmers State Bank | March 1971 |
| 20. | Commercial Trust Company of New
Jersey/
Bergen County National Bank of
Hackensack | May 1971 |
| 21. | United Virginia Bankshares/
Security National Bank of Roanoke | July 1971 |
| 22. | First and Merchants Corporation/
First National Bank of Danville | August 1971 |
| 23. | Commerce Union Bank/
Broadway State Bank | February 1972 |
| 24. | Union City Trust Company/
Keanesburg-Middleton National Bank | March 1972 |
| 25. | Savannah Bank and Trust Company of
Savannah/
Chatham Savings Bank | April 1972 |
| 26. | New England Merchants Company/
Barnstable County National Bank of
Hyannis | May 1973 |
| 27. | Union Planters Corporation/
Tennessee National Bancshares | October 1973 |

- | | | |
|-----|---|----------------|
| 28. | Commonwealth National Corporation/
Town Bank and Trust Company | November 1973 |
| 29. | Baystate Corporation/
First National Bank of East Hampton | March 1974 |
| 30. | Manchester Financial Corporation/
National Bank of Affton, Missouri | April 1974 |
| 31. | Fidelity Union Bancorp/
Colonial First National Bank | May 1974 |
| 32. | Pittsburgh National Corporation/
Central Mortgage and Investment
Company | August 1974 |
| 33. | Trust Company of Georgia/
First State Bank of Fitzgerald | October 1974 |
| 34. | Detroit Bank Corporation/
First National Bank of Warren | April 1975 |
| 35. | First National Cincinnati
Corporation/
Miami Deposit Bank | August 1975 |
| 36. | Suburban Bancorp/
Thurmont Bank | December 1975 |
| 37. | United Counties Trust Company/
Springfield State Bank | February 1976 |
| 38. | Charter New York Corporation/
Peter DePuy State Bank | April 1976 |
| 39. | First National Bancorp Denver,
Colorado/
First National Bank of Montrose | September 1976 |
| 40. | Marshall and Ilsley Corporation/
Fox Heights State Bank | March 1977 |
| 41. | Old Kent Financial Corporation/
People Bank and Trust | October 1977 |
| 42. | First National Cincinnati
Corporation/
Third National Bank of Circleville | October 1977 |
| 43. | Bancorp of Montana/
Bank of Montana | November 1977 |

- | | | |
|-----|---|----------------|
| 44. | Marine Corporation/
American Kettle Moraine Bank | November 1977 |
| 45. | First Bank System/
Granite City National Bank of St.
Cloud | December 1977 |
| 46. | Suburban Bancorp/
Peoples National Bank | January 1978 |
| 47. | Central National Corporation/
Citizens National Bank of Emporia | April 1978 |
| 48. | Fidelity Union Bancorp/
Burlington County Trust Company | May 1978 |
| 49. | Citizen and Southern Corporation/
Carolina Credit Life Insurance
Company | August 1978 |
| 50. | First Bank Group Ohio/
Sterling State Bank | September 1978 |
| 51. | Exchange Bancorp/
Vanderbilt Bank | September 1978 |
| 52. | Detroit Bank Corporation/
Detroit Bank of Novi | September 1978 |
| 53. | Florida National Bank Florida/
National Bank of Cape Coral | October 1978 |
| 54. | Connecticut Bank and Trust Company/
Liberty National Bank | November 1978 |
| 55. | Manufacturers National Corporation/
American Heritage Bancshares | March 1979 |
| 56. | Commercial Trust Company New Jersey/
Community State Bank and Trust
Company | April 1979 |
| 57. | Trust National Bank Financial
Corporation/
Pioneer Bancorp | June 1979 |
| 58. | Valley Bancorp/
Wisconsin National Bank in Watertown | August 1979 |
| 59. | United Virginia Bank Commonwealth/
United Virginia Bank | September 1979 |

60.	Southeast Banking Corporation/ First Bancshares of Florida	October 1979
61.	First Charter Financial Corporation/ Syracuse Bancorp	December 1979
62.	First National Charter/ Farmers Savings Bank	January 1980
63.	Bank Iowa/ Cedar Falls Trust and Savings Bank	February 1980
64.	Southeast Banking Corporation/ Community Bank of Pasco	May 1980
65.	Heritage Bancorp/ City National Bank and Trust of Salem	June 1980
66.	Fidelity Union Bancorp/ Garden State National Bank	June 1980
67.	Virginia National Bankshares/ First National Bank of Troutville	July 1980
68.	Great Lakes Financial Corporation/ Montcalm Central Bank	July 1980
69.	Central National Bankshares/ Spencer National Bank	July 1980
70.	Centran Corporation/ Franklin Bank	August 1980
71.	Bank New York/ Empire National Bank	August 1980
72.	Manufacturers Hanover Corporation/ Bankers Trust Company (8 branches)	August 1980
73.	Flagship Bank/ Florida Bankshares	August 1980
74.	Colorado National Bankshares/ Arvada State Bank	December 1980
75.	First Virginia Banks/ Peoples Bank of Hanover County	April 1981
76.	NBD Bancorp/ National Ann Arbor Corporation	April 1981

- | | | |
|-----|---|---------------|
| 77. | Northwest Bancorp/
State Financial Services | May 1981 |
| 78. | Independent Bankshares Corporation/
Vaca Valley Bank | July 1981 |
| 79. | Wyoming National Corporation/
First Bankshares of Wyoming | July 1981 |
| 80. | Charter New York Corporation/
Citizens Central Bank | July 1981 |
| 81. | Jefferson Bancorp/
Republic Bank and Trust Company | October 1981 |
| 82. | Mercantile Bankshares Corporation/
Peoples Bank of Maryland | December 1981 |
| 83. | Florida National Banks of Florida/
Alliance Corporation | December 1981 |
| 84. | Bank Iowa/
Avoca State Bank | January 1982 |
| 85. | Old Stone Corporation/
Pacific-Southern Mortgage Trust | January 1982 |
| 86. | Maryland National Corporation/
Central Atlantic Bank | February 1982 |
| 87. | Greater Jersey Bancorp/
Anthony Wayne Bank of Wayne,
New Jersey | March 1982 |
| 88. | Philadelphia National Corporation/
Philadelphia Bank of Delaware | March 1982 |
| 89. | First and Merchants Corporation/
Wise County National Bank | April 1982 |
| 90. | First Maryland Bancorp/
First Omni Bank | April 1982 |
| 91. | First Alabama Bankshares/
Anniston National Bank | May 1982 |
| 92. | Sun Banks Florida/
Century Banks | May 1982 |
| 93. | First Bank Group Alabama/
First National Bank of Russellville | June 1982 |

94. Affiliated Bankshares Company/ Littleton National Bank	August 1982
95. Bank of Virginia Company/ Bank of Vienna	November 1982
96. Northeast Bancorp/ Security Bank and Trust	December 1982
97. Southeast Banking Corporation/ Florida National Bank of Florida	January 1983
98. United Counties Trust Company/ Kenilworth State Bank	January 1983
99. United Jersey Bank, Hackensack/ North United Jersey Bank, Montvale	January 1983
100. Key Bank/ Bankers Trust Company of Western New York	February 1983
101. Utah Bancorp/ Intermountain Thrift and Loan	February 1983
102. Rainier Bancorp/ Peoples Bank and Trust of Anchorage	March 1983
103. Texas Commerce Bankshares/ Bank of Pasadena	March 1983
104. Mercantile Bancorporation/ Interstate Bank of St. Peters	March 1983
105. State National Corporation/ Bank and Trust Company of Arlington Heights	April 1983
106. Fidelcor/ Southeast National Bancshares of Pennsylvania	May 1983
107. Barnett Banks of Florida/ Boulevard Bank	June 1983
108. Bank America Corporation/ Seafirst Corporation	June 1983
109. Dauphin Deposit Corporation/ Bancorp of Pennsylvania	July 1983

- | | |
|---|----------------|
| 110. First Connecticut Bancorp/
Independent Bank and Trust Company | September 1983 |
| 111. American Fletcher Corporation/
American Fletcher Mortgage Company | September 1983 |
| 112. Banc Oklahoma Corporation/
American Bancshares | November 1983 |

The preceeding bank numbers are not identical to those bank numbers referred to in Chapter 6.

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