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EVIDENCE ON CHANGES IN BANK CHARACTERISTICS

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ABSTRACT

Changes in the environment in which commercial banks operate have resulted from a succession of regulatory, legislative, and technical developments, including - most dramatically - the implementation of the Monetary Control Act of 1980. Other environmental changes have resulted from the changing nature of economic activity - not only the historically high levels of and greater variability of interest rates, but also the emergence of new realms of competition. Thus, this study takes a two-pronged approach in exploring potential evidence of a transformation in the characteristics and relationships by which commercial banks have been traditionally defined. First, we analyze selected components of the financial statements to discern new approaches to the business of commercial bank management. As our second approach, we examine market data to discern changes in financial risk and return relationships over time.

INTRODUCTION

This study addresses the issue of managerial response to the changing environment faced by the industry of commercial banking. Changes in the environment comprise (1.) unprecedented traditional and non-traditional competitive pressures; (2.) a dramatic increase in the level and variability of interest rates; and (3.) steps towards deregulation and regulatory reform, including (but not limited to) the passage of the Depository Institutions Deregulation and Monetary Control Act of 1980; (See Goodfriend, Parthemos and Summers (1980), and Snelling (1980).) Many aspects of these developments are inextricably interrelated. It is possible that many of the changes in regulations and governmental practices resulted from the first two environmental changes, just as various changes in regulatory practices may have led to or exacerbated a number of aspects of the other two changes in the environment. Clearly, one effect of these developments is to present a range of potential problems and opportunities to which the successful management team will respond.

We take a two-pronged approach in this investigation. We examine the financial statement data and we examine relevant market data of large commercial banks in a search for evidence that may confirm, or cast doubt upon, our hypotheses in this inquiry. Our first hypothesis concerns changes in managerial policies and practices indicated by changes in the composition of assets and/or liabilities and the effect of such changes on current bank profitability. Second, we investigate the relationship between returns to bank shares and returns to the market. In Section I we develop the general suppositions. Concepts and models by which we examine commercial bank activity

and performance are developed in Section II. The methodological development and empirical analysis are contained in Section III. In Section IV we present our results and conclusions.

I. CHANGES IN THE ENVIRONMENT FOR COMMERCIAL BANKING

We anticipate that commercial bank management is responsive to the evolving problems and opportunities of the environment-problems and opportunities which include, but are by no means limited to, innovative financial instruments. The commercial banking industry faces increased exposure to risk from both external and internal environmental factors. For example, other entities may offer the equivalent of traditional banking services in combination with attractive non-bank features, and banks may respond by assuming assets and liabilities with which bank managers have only limited experience. Risks inherent in higher levels of interest rates and greater interest rate variability and in the competitive encroachment of other institutions are exacerbated by the fact that bank customers (1.) are sensitive to the opportunity costs of traditional banking behavior in this environment of greater interest rate variability and (2.) have an increasing array of non-bank substitutes for traditional bank services. On the other hand, aspects of a less regulated environment continue to offer new opportunities for growth and profitability through market expansion, new financial instruments, fewer portfolio controls, and the phasing out of pricing constraints (the heretofore protective facets of price controls having been made largely obselete through competitive pressures, e.g. money market funds).

A number of studies of developments in the commercial banking sector during this period of innovation, of regulatory reform, and of magnified interest rate risk has been undertaken. However, most of these either (1.) provide a chronology of the development of new financial instruments or (2.) focus upon the

impact of monetary control on the existence of these myriad instruments and of other related developments in financial innovation.

Goodfriend, Parthemos, and Summers (1980) (1.) discuss some of the factors which have facilitated financial innovation and (2.) catalogue regulatory and technical developments which led to a decreased proportion of demand deposits and regular savings deposits among the liabilities of commercial banks. Snellings (1980) also provides a survey of developments in the financial services industry. Summers (1978) and Varvel (1979) describe changes in bank activity and performance from the early sixties through the middle and late seventies for banks under the supervision of the Federal Reserve Bank of Richmond, and they compare these changes in Fifth District Banks with changes for all U.S. Banks.

Our inquiry differs from these prior studies in at least two ways: First, this research constitutes an explicit examination of financial statement data.[1] It applies appropriate statistical test procedures to those operations in which managerial policy responses to the changing environment are most likely to occur. An appropriate examination of the financial statement data should yield evidence on the magnitude and significance of such policy changes.[2] Secondly, we present an analysis of market data to consider any evidence of change in the risk and return profile of the commercial banking sector, consistent with our analysis of the financial statement data.

II. DEVELOPMENT OF HYPOTHESES

In order to investigate whether, in the face of regulatory changes, technological innovation, increased competitive pressures and other changes, there has been a shift in the operations of commercial banks, we conceived a straightforward description of a firm's activities.[3] The following assumptions were the basic ones which guided the development of our hypotheses:

a) banks pursue an objective of maximization of the firm's current market value,

b) the essential determinant of the current market value of the firm is the earning power of current and expected future assets,[4]

c) the valuation of banks occurs in efficient capital markets.

Assumption (a) is consistent with the view of a bank as a firm, driven by risk and return considerations of conventional theory of finance. Assumptions (b) and (c) are widely accepted assumptions regarding value determination and equilibrium pricing which are relevant for the objective in assumption (a). [See Modigliani, Miller (1961) and Fama (1970)]. Fundamentally, a bank's survival will be determined by its ability to provide a competitive rate of return -especially as their traditional areas of activity are encroached upon by nonbank financial and nonfinacial entities. An informed judgement of banks' perceived strength may be obtained by observing earnings performance through time and analyzing the relevant market response. We shall therefore apply conventional capital market theory to the market performance of the portfolio of banks which constitute the study sample.

Our empirical investigation began on the premise that if changes arising in the competitive and regulatory environment adversely affected the operations of banks, then their profitability would be hurt. In response, management would engage in nontraditional, perhaps higher risk activities, in order to restore their profitability. Finally, the market would render judgement by appropriately adjusting the risk and return dimensions in pricing banks' securities. Our investigation, therefore, presents evidence regarding (i) trends in bank profitability (ii) changes in banks' asset and liability portfolios, and (iii) the market performance of banks.

In addition to our investigation of bank profit ability, we formulate these hypotheses:

H_{01}: There were no significant adjustments in the composition of either the asset or liability portfolios of banks during the study period.

H_{02}: There were no changes in the systematic risk/return relationship of commercial banks during the study period.

These hypotheses are tested, and the results of the tests form the basis for conclusions regarding bank performance during a period of apparent changes in the competitive environment.

III. THE EMPIRICAL ANALYSIS

A. The Data Base

Our original sample of banks consisted of the fifty largest (in assets) banks as of December 31, 1980.[5] Eliminating those banks for which financial statement data were not available from the annual Bank COMPUSTAT resulted in a sample of forty-five (45) banks. For this sample, annual data are generally available on selected variables for our study period 1961-1980; however, for some of the variables, data are not widely available until the later years of the study period. The sample for which monthly market data for our study period are available from the CRSP tapes consisted of thirty-four (34) banks. This sample from the CRSP tapes consisted of banks listed either on the New York Stock Exchange or the American Stock Exchange. For only one bank is CRSP monthly data available for the entire 1961-1980 period; monthly CRSP data are available for about half of the banks for the 1970-1980 period; and almost all of the monthly CRSP data are available for the latest years.

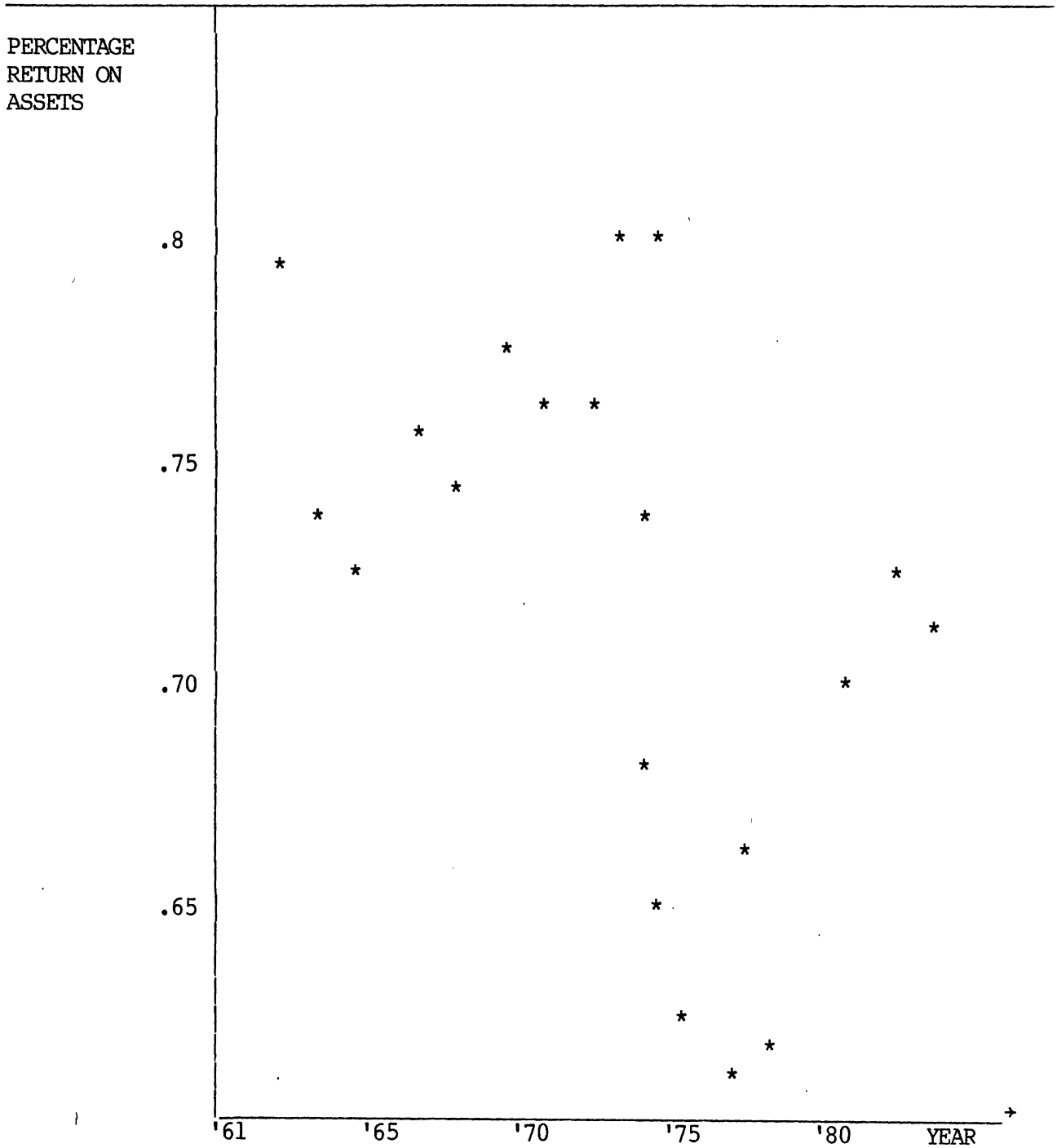
In addressing the hypotheses, we examined measures of bank profitability, market performance, and several variables relating to possible changes in the composition of and the contribution from the asset portfolio. In general, we examined relationships over subsets of the study period 1961-1980. We consider the period 1971-1980 the period of rapidly accelerating change and innovation. This demarcation is broadly consistent with the evolution of regulatory reform and with related economic and technological developments.[6]

We first examine changes in the profitability of commercial banks during the study period. One traditional measure of profitability is return on assets. Figure 1 shows the returns on assets of an equally weighted portfolio of our sample banks. Return on assets is defined as net operating income divided by total assets. (Use of net income yielded very similar results.) First, we see that timewise, behavior patterns of the returns falls into categories virtually indistinguishable from our a priori demarcation of periods of change within the industry. Secondly, we note that the data show consistently higher returns for the sixties than the seventies, despite the upswing of returns observed during the latter half of the seventies. These observations are not inconsistent with a world in which predatory competitors may have realized a competitive advantage relative to interest-rate regulated commercial banks on account of increasing interest rate levels and variability. However, the question arises as to whether this pattern of earnings deterioration was significant enough to prompt managers to make significant portfolio revisions in their assets and/or liabilities.

FIGURE 1

RETURN ON ASSETS OF THE PORTFOLIO

OF SAMPLE BANKS



We have hypothesized that emerging from a period of rather restrictive regulations (which worked to the competitors disadvantage of commercial banks), the portfolio of the banking industry may be characterized as composed of traditional

and non-traditional assets and liabilities. (Non-traditional categories may be employed to overcome business adversity.) We define the traditional and non-traditional categories as consistent with discussions of the typical composition of a bank balance sheet.[7]

Table I.

ASSET CATEGORIES

Traditional	Non-traditional
- Cash	- Fed Funds Sold and Securities Purchased
- Business Loans	- Foreign Loans
- Consumer Loans	- Loans to Purchase Securities
- Real Estate Loans (Insured)	- Customers' Liability to Bank on Acceptances Outstanding
- State and Local Securities (Muncipal Bonds)	- Direct Lease Financing
- Treasury Securities	- Real Estate Loans in excess of Insured Real Estate Loans

Table II.

LIABILITY CATEGORIES

Traditional	Non-traditional
- Demand Deposits	- Commercial Paper
- Savings Deposits	- Fed Funds Purchased for Resale
	- Long-term debt Not Classified as Capital
	- Total Foreign Deposits
	- Consumer Time Deposits
	- Money Market Certificates of Deposit.

In general, non-traditional assets and liabilities were either very minor proportions of the portfolio for a typical bank (less than 5%) or did not even exist at the start of the study period. This classification is based upon the entire industry's profile and may not reflect the fact that some of the larger banks,

such as those in our data set, did indeed offer some of these "non-traditional" products even during the earliest period under consideration. However, our statistical tests will provide evidence as to whether the non traditional categories have risen from peripheral (or non-existent) to significant proportions of the banks' portfolios. Both for parsimony, and in order to deal with potential problems resulting from missing data in some (especially non-traditional) categories, we initially summed all non-traditional categories creating a single non-traditional asset category. Analogously, we created a single non-traditional liability category. For purposes of the statistical analysis, we divided each data item shown in Tables I and II by total assets: each variable represents a specific category as a proportion of total assets.

Tables III - VI contain (1.) the mean proportion of total assets comprised by each category of assets and liabilities in each of the four sub-periods over the entire time period studied, and (2.) the level of significance attained by the Mann-Whitney U test statistic for the hypothesis that the distributions of the asset (liability) category is the same from one period to the next. This comparison of average values over time is consistent not only with our hypothesis, but also with other studies that infer changes in the business of banking from changes in the balance sheet and other financial statement relationships over time. As a departure from mere proportional description, we employ the Mann-Whitney U test to determine whether the distribution of the variable of interest (some asset/liability as a proportion of total asset) has significantly shifted over time. This non-parametric procedure is particularly appropriate when there is little confidence that the variables of interest retain the same distributional properties across the strata (the various sub-periods) of comparisons.[8]

Table III presents each asset category as a percentage of total assets over the specified sub-periods. Table III, also, indicates the period-to-period level

of significance on the Mann-Whitney U test of the hypothesis that there is no significant change in the category as a proportion of total assets.

For example, the Mann-Whitney U test results indicate that for the item Insured Real Estate there is a 63.31% probability that a distribution which produced an average of .04714 for 1961-1965 could also have produced an average of .04261 for 1966-70; i.e., there is a 63.31% probability that the average proportion of Insured Real Estate loans has not changed. On the other hand, it appears that this proportion has indeed shifted significantly from the 1966-1970 period to the 1971-1975 period: there is only a 0.5% probability that the distribution which produced the .04261 average would also produce the .0220 average. To the extent that the Mann-Whitney U test statistics are significant at conventional levels, we infer a change in managerial policies and practices in the use of those assets (or liabilities in Tables V and VI).[9]

Table III

ASSET CATEGORIES AS A PROPORTION OF TOTAL ASSETS

	61-65		66-70		71-75		76-80
Cash	.20107	(.6641)	.19941	(.7361)	.20233	(.1404)	.21229
Business Loans	.25798	(.0004)	.28293	(.0000)	.21144	(.0000)	.18913
Consumer Loans	.09275	(.3936)	.09735	(.0017)	.07810	(.1269)	.08788
Insured Real Estate	.04714	(.6331)	.04261	(.0051)	.02209	(.0533)	.01623
Municipal Bonds	.09033	(.0001)	.10345	(.0031)	.09204	(.0000)	.06899
U.S. Securities	.14160	(.0000)	.08802	(.0000)	.05477	(.2884)	.05199
Non-Traditional Assets	.10046	(.2523)	.09054	(.0000)	.22902	(.0000)	.31623

Levels of significance on Mann-Whitney U tests are given in parentheses: test that average proportion is the same from one period to the next.

The item cash as a proportion of total assets has remained fairly stable over the entire period. Although increased opportunity costs arising from high levels of inflation may suggest that the banks should show signs of economizing on cash balances over time, the progressive reserve requirement system (based upon nominal deposits) may have offset any attempts at economizing on cash balances. It is possible that these large banks have been employing cash management procedures, albeit ad hoc procedures, since the early sixties. This supposition that the cash position is at some minimum perhaps non-discretionary, level is consistent with the observation that cash/total assets is the only asset or liability proportion that exhibits no significant change over the entire four-period span.

Furthermore, there appears to be a shift away from almost each traditional asset category of the sixties into a large proportion of non-traditional assets (from 10% in 1961-65 to 31.6% in 1976-80) during the seventies. All other traditional asset categories experienced a net loss over time to the category of non-traditional assets: over twenty-percent of the total asset base shifted during this period. The comparison between the periods 1966-1970 and 1971-1975 shows every traditional asset category, except cash, with a significant loss in relative weight in the asset portfolio. (We note, however, that Municipal Bonds have increased compared to all other securities: This increase is consistent with our progressive tax structure based on nominal income in combination with a period of high inflation.) With the exception of consumer loans, the decrease in the average proportion of traditional assets continued monotonically throughout the seventies.[10]

Based on this evidence, we can reject the null hypothesis of no portfolio changes with respect to bank assets. In fact, this evidence is consistent with behavior that would be expected if rational profit maximizing managers either saw new profit opportunities in a changed environment, or were willing to take on new projects to restore profitability to an acceptable level. Table IV displays a lack of homogeneity in the distribution of asset value among the non-traditional asset categories over time. By far the largest increment has been the category Foreign Loans, jumping from no reported observations to 1.3% of total assets to 11.4% of total assets -- over one-third of the total non-traditional assets. While Foreign Loans, Fed Funds Sold, and Acceptances and Leases accounted for under 3% of total assets in the 1961-1965 period, these categories comprise over 18% of total assets in the latest period, 1976-1980.[11] The proportion of total assets composed of the remaining non-traditional assets in the earliest period was surprisingly high. It is possible that Loans to Purchase Securities and

Loans to Financial Institutions may be more traditional for this sample of the very largest banks, in contrast to the total commercial banking industry. The proportion of Non-Insured Real Estate is the only "large" non-traditional category that continued to increase.

In any case, at least with respect to the banks included in this study, we may make some conclusions regarding their book performance. In the period of study, the evidence is consistent with a view that bank profitability was eroded and managers attempted to halt that erosion by resorting to new (probably higher risk) assets for inclusion in their portfolios. This finding is consistent also with in Summers (1978).

Table IV

NON-TRADITIONAL ASSETS AS A PROPORTION OF TOTAL ASSETS

	61-65		66-70		71-75		76-80
Non-Insured Real Estate	.06301	(.0239)	.05277	(.0000)	.07541	(.0000)	.10405
Fed Funds Sold	.0122	(.0155)	.01951	(.0000)	.04447	(.7226)	.03898
Foreign Loans	-	N.A.	.01348	*	.1114	(.5944)	.1143
Loans to Purchase Securities	.06037	(.4734)	.05507	(.0000)	.01791	(.0401)	.01408
Acceptances	.01496	(.0175)	.01179	(.4690)	.01316	(.0000)	.02388
Leases	.00095	(.0000)	.00452	(.0000)	.00946	(.2330)	.01206
Financial Institutions	.06709	(.8415)	.06676	(.1611)	.05641	(.0000)	.03889

Levels of significance on Mann-Whitney U tests are given in parentheses: test that average proportion is the same from one period to the next.

*Too few observations to calculate Mann-Whitney U significance.

We next turned our attention to the banks' liabilities composition. Liabilities as proportions of total assets are exhibited in Table V. The first notable fact is the existence of only two traditional liabilities compared to three times as many traditional assets. However, this disparity in the breadth of the asset portfolio compared with the liabilities is narrowed considerably during the period 1971-1980, when all non-traditional categories expand both the ranges of assets and liabilities. Secondly, as measured by the Mann-Whitney statistics, there has been a dramatic and steady shift away from the traditional liabilities, demand and savings deposits. The percentage of assets financed by demand deposits has fallen significantly in each period from 54.8% in the 1961-1965 period to less than half that proportion, 25.1% in the 1976-1980 period. Likewise, the proportion of assets financed by savings deposits has dropped from 20.6% in the 61-65 period to only 12.9% in the last period, with the most significant shift ocurring between the sixties and the seventies as consistent with our a priori demarcation of the time trend of a changing competitive environment.[14] The appropriateness of our demarcation between the sixties (traditional banking) and the seventies (non-traditional banking) is supported by the fact that in Table V every change between the two decades is significant by conventional standards.

Table V

LIABILITY CATEGORIES AS A PROPORTION OF TOTAL ASSETS

	61-65		66-70		71-75		76-80
Demand Deposits	.54766	(.0000)	.44308	(.0000)	.31607	(.0000)	.25113
Savings Deposits	.20640	(.2110)	.18361	(.0075)	.14109	(.1574)	.12878
Non-traditional Liabilities	.21936	(.0000)	.32443	(.0000)	.42728	(.6659)	.42542

Levels of significnce on Mann-Whitney U tests are given in parentheses: test that average proportion is the same from one period to the next.

The components of the category non-traditional liabilities as a proportion of total assets are analyzed in Table VI. Consistent with the results from Table V, there is a significant increase in every category of non-traditional liabilities over the entire study period. The increase in foreign loans shown in Table IV, along with the dramatic run-up in foreign deposits demonstrates a substantial move by banks in our sample into the international sector during the sixties, with foreign deposits stabilizing at about 16% of total assets during the decade of the seventies. Increasing foreign deposits has often been cited as potentially one method of circumventing the constraints of domestic regulations.

Table VI

NON-TRADITIONAL LIABILITIES AS A PROPORTION OF TOTAL ASSETS

	61-65		66-70		71-75		76-80
Long-Term Debt (not capital)	-	N.A.	.0044	(.0001)	.00945	(.0000)	.01457
Commercial Paper	-	N.A.	.00348	(.0916)	.00746	(.0000)	.013542
Fed. Funds Purchased	.01083	(.0000)	.03349	(.0000)	.07477	(.0000)	.09385
Foreign Deposits	.01092	(.0000)	.05405	(.0000)	.15398	(.5814)	.16718
Time Deposits	-	N.A.	.18718	*	.14620	(.0674)	.19544
Money Market Certificates	-	N.A.	.02828	*	.11393	(.4789)	.12383

Levels of significance of Mann-Whitney U tests are given in parentheses: test that average proportion is the same from one period to the next.

*Too few observations to calculate Mann-Whitney U significance.

Other than foreign deposits, the non-traditional liabilities generally represent a significant increase in the use of purchased money. In fact, except for Fed Funds Purchased (at only 1.1% of total assets) there are no observations reported for purchased funds in the 1961-1965 period. This dramatic increase in the use of rate sensitive, purchased funds is likely to increase the costs of funds (potentially reducing the interest spread) during periods of high interest rates, without concomittant increases in the spread when rates are low. This evidence is consistent with the evidence presented earlier on bank profitability during the study period.

In summary, the evidence we have found is that bank managers have made significant changes in the asset and liability composition of commercial banks during the study period -we believe that these adjustments were in response to a deteriorating profitability situation.

The final judgement on this activity will of course be reflected in the market's response to this behavior on the part of bank managers, and it is that evidence to which we now turn our attention.

The Market Model and Bank Performance

The market model is the well known standard against which the market performance of individual companies or other portfolios may be judged. The model may be described as follows:

$$r_{jt} = {}_{jt} + b_{jt}r_{mt} + e_{jt}$$

where
- r_{jt} realized return in period t on the j^{th} asset
- r_{mt} realized return in period t on a market index
- e_{jt} random error assumed to be normally distributed
- b_{jt} measured 'beta' coefficient - a measure of systematic risk - on the j^{th} firm.
- ${}_{jt}$ realized return in period t on a zero beta market factor.

The model has been used extensively in "event" studies to examine the market's reaction to particular events, e.g., the response of the market to periodic dividend or earnings announcements. In the present study, such a clearly identifiable event is not the object. Rather, our study is of a process occurring over time. In addition, there were insufficient monthly return data on banks listed on the NYSE and AMEX to form portfolios over the entire study period, 1961-1980. We did, however, find sufficient data to form portfolios

consisting of shares from no fewer than ten banks, beginning in 1969. Using total returns for 137 months ending in December 1980, we tested for a market effect in the following manner. We tested for any significant changes in the beta coefficient on the portfolio of bank returns, and we tested for any incremental effects of inflation not captured by the market return effects. Finally, we examined the behavior of any excess monthly returns to the portfolio of banks shares, $R_{bt} - R_{mt}$, over the study period.

To test for any change in the beta coefficient and to test for any effect of inflation on the bank portfolio's monthly returns, we ran the following regression:

$$R_{bt} = b_o + b_1 I_t + b_2 R_{mt} + b_3 D R_{mt} + \varepsilon_{bt} \quad \text{where } R_b \equiv \qquad (4)$$

where

$R_b \equiv$ monthly yield on the portfolio of banks

$I \equiv$ monthly yield on 1 year T-Bills, inflation proxy

$R_m \equiv$ monthly returns on equally-weighted NYSE index

$D \equiv$ dummy variable of value zero 0 for time period t = 1971-75 and 1 for time period t = 1976-80.

In equation (4), b_1 reflects the effect of inflation (as measured by 1-month T-Bill yields) on the monthly market returns of our bank portfolio in the period 1971-1980; the coefficient b_2 measures the bank portfolio's beta in the period 1971-1975; and the coefficient b_3 measures any changes in that beta coefficient as observed in the period 1976-1980.[13] If our sample of banks experienced greater competitive pressures in the later period relative to the earlier period, and entered new arenas of activity, then the total risk of these banks may be significantly increased. On the other hand, if a change in the regulatory climate resulted in removal of former barriers to diversification opportunities, then b_3 (representing systematic risk) may be significantly negative. To the extent that the values of banks' portfolios maynbe particularly susceptible to inflationary effects, we expect b_1 to be significantly negative.[14]

The actual results of our model are presented with t-statistics in parentheses:

$$R_{bt} = .0048 - .986I_t + 1.018R_{mt} - .158DR_{mt} + \varepsilon_{bt};\ R^2 = .584$$
$$(.469)\ (-.583)\quad (10.086)\quad (-1.029)$$

In general, these results do not support our prior suppositions concerning the coefficients. Neither b_1 nor b_3 is significantly different from zero, although the signs are negative as expected. Apparently, there is no significant inflationary effects beyond that which is captured in the term b_2R_{mt}. The returns on the portfolio of banks were slightly riskier than the market returns (using this equally weighted market index), with a beta coefficient of about 1.02.

We performed one other analysis of the banks' performance (as measured by our sample) during the period 1969-1980. In each year of the study period we computed the average annual monthly return on the portfolio of banks

$\left[R_{bt} = \frac{1}{12}\sum_{m=1}^{12} R_{bm},\ m=1....12,\ t = 1969....., 1980\right]$

and the average annual monthly return on the market portfolio $\left[\bar{R}_{mt} = \frac{1}{12}\sum_{m=1}^{12} R_{mm}\right]$.

We then computed the differences on these annual monthly average returns as follows:

$r_t = \bar{R}_{bt} - \bar{R}_{mt}$, where $r_t \equiv$ excess annual average monthly returns. These averages were then regressed on time to observe the general trend in these excess annual averages. If there was no significant change in bank performance in the less regulated competitive environment, then there should be no trend in the excess returns above. The model used was

$$r_t = \gamma_0 + \gamma_1 t + \varepsilon$$

The results of the analysis are shown below (t-statistics in parentheses)and in Figure 2.

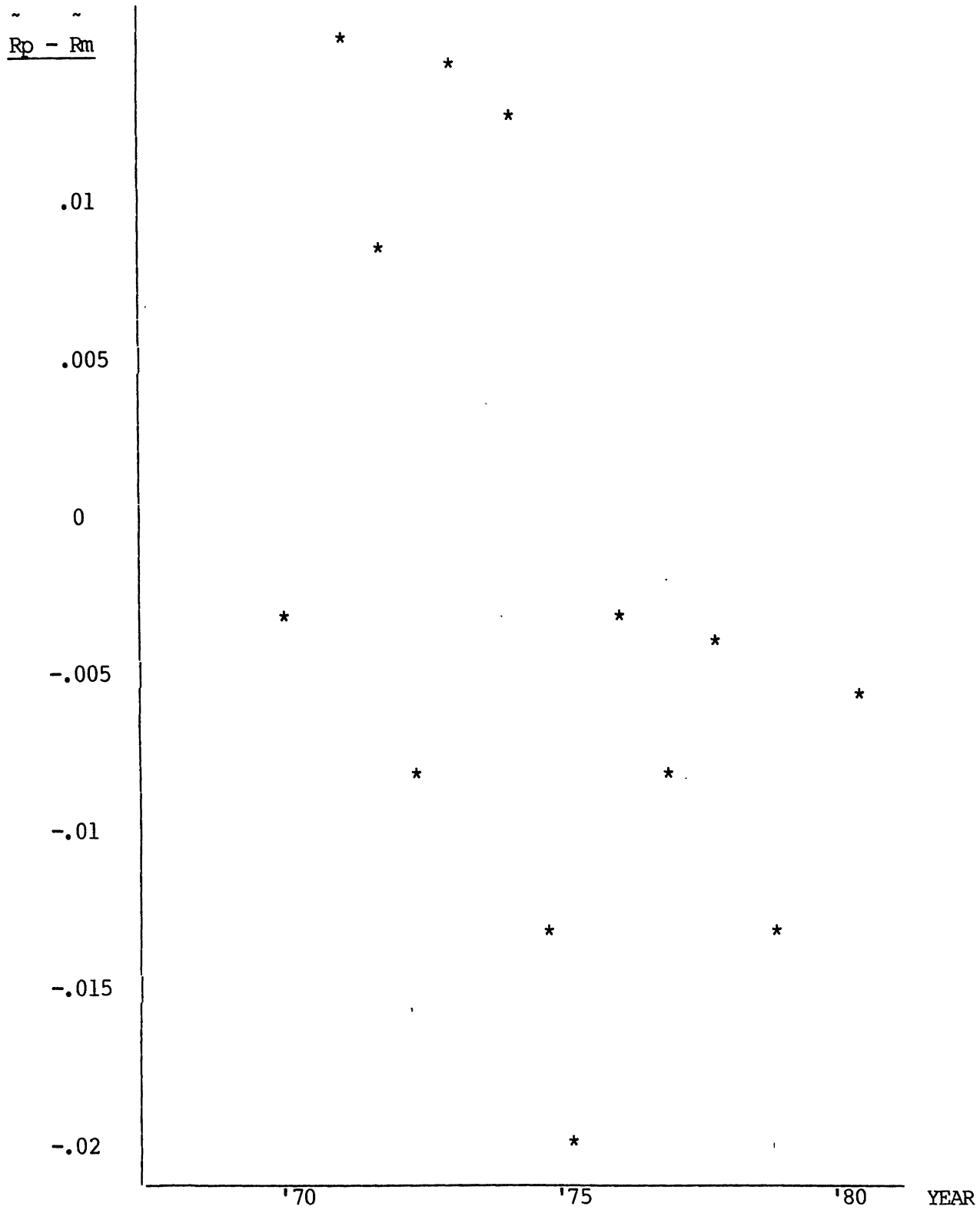
$$r_t = .0184 - .00153\ t + \varepsilon;\ R^2 = .25$$

$$(1.59) \quad (-1.92)$$

The coefficient on time, γ_1, was negative and significant at the 8 % level. We thus could not reject the hypothesis that, relative to the market, the annual average monthly returns of our portfolio of banks had a significant downward trend in the period 1969-1980. This trend is consistent with the tendency of the beta coefficient on the portfolio of banks to decrease during the period (as reported earlier) and is shown in Figure 2.

FIGURE 2

EXCESS RETURNS ON THE PORTFOLIO OF SAMPLE BANKS



IV. SUMMARY AND CONCLUSION

IV. SUMMARY AND CONCLUSIONS

This study addressed the issue of commercial banking policies and practices over an era characterized by critical regulatory and other economic changes in the environment of the industry. We examined changes in the basic composition of the portfolios of large commercial banks; we investigated the trend of bank profitability, as defined by return on assets; and we tested the relationship between the returns to equity of our sample banks and returns to the market.

In general, we conclude that, indeed, our sample of large banks have changed significantly over the past two decades mixed. Our inquiry provided evidence of the expansion in the breadth and diversity of bank activity that we hypothesized would occur as a result of regulatory and other environmental changes. To the extent that the market response was significant, the finding is that over the period of deregulation and other economic changes banks have become less risky as measured by the beta coefficient. With respect to <u>systematic</u> risk, the safety and soundness of these banks have apparently increased slightly during the study period. This finding of reduced risk, as measured by the relationship between market returns and firm (bank) returns, may stem from increasingly high levels of FDIC insurance and increased opportunities for diversification in both the domestic and international sectors that may be unique to these very large banks. In addition, to the extent that the fifty largest banks represent fewer than one percent of the total number of banks, yet control forty (40%) percent of the banking deposits, result from these banks likely hold implications for the direction of the overall industry. Further research is needed to more fully explore these issues.

FOOTNOTES

1. According to Summers (1978), p. 11, "Examination of the bank balance sheet provides one of the most direct means of viewing changing patterns of demand for bank services." Most of the studies cited focus upon changes in the financial statements and employ descriptive rather than statistical procedures.

2. One other exception to the use of purely descriptive techniques can be found in Flannery (1982b); however, the study deals with the far more narrowly defined issue of how average asset and liability maturities respond to interest rate fluctuations.

3. Our assertion is that a bank is "just another firm" subject to explanatory theories of firm behavior that may have been (incidentally) developed and conventionally applied in the realm of (non-financial) corporate finance. Thus, we present this interpretation of a generic income statement as follows:

Generic Statement	Bank Statement
Revenues	Interest Income & Service Fees
- Cost of Goods Sold	Interest Expense on Non-Capital Liabilities
Gross Margin	Gross Margin (Spread)
- Selling Administrative Expenses	Non-Interest Operating Expenses
Net Operating Income	Net Operating Income
- Interest Expense	Interest on Debt Capital
Taxable Income	Taxable Income
- Taxes	- Taxes
Net Income After Taxes	Net Income After Taxes.

4. The objective of firm value maximization is consistent with Net Operating Income (NOI) as the variable of interest. The objective of stockholder wealth maximization makes Net Income after taxes (NI) the variable of interest. We note however that both the foregoing objectives are equivalent provided either or both of the following conditions are met:

   1.) bondholders write protective covenants into their bond contracts prohibiting management from making decisions that would transfer wealth from bondholders to stockholders e.g. a dividend restriction clause, and

2.) securities are traded in efficient markets wherein bond prices would reflect a premium for the probability that bondholders may have some of their wealth transferred to the firm's stockholders. [See Haley/Schall (1979) Chapter 11 for a more detailed exposition of the above points.]

5. Strictly speaking these data are from bank holding company reports. The difficulty in obtaining separate bank data means that holding company data is conventionally applied, e.g. Flannery (1981). Varvel (1979) found that over ninety-five (95%) percent of bank holding company assets were allocated to the banking subsidiary in his study of Fifth District bank holding companies.

6. This demarcation is consistent with a number of precedents. Goodfriend, Parthemos, and Summers (1980) begin their discussion of recent financial innovations,

> "The past two decades have been characterized by a number of significant innovations in the U.S. financial system, which today differs greatly from the system, existing at the beginning of the 1960's."

They, also, provide a chart of regulatory and related developments that demonstrates the rapid acceleration of changes in the environment during the seventies in comparison with the sixties. In addition, Summers (1978) describes the "significant changes in the organization, structure, and balance sheet composition" of banking over the period 1960-1976. Our characterization of 1971-1980 as the period of change and innovation is consistent with other examinations relating to these issues. More than simply a convenient break in the set of twenty years of data, this demarcation is useful given that the first major, comprehensive call for legislation to permit greater competition in the financial services sector, i.e. the Hunt Commission report, was made in 1971.

7. Assets and liabilities are designated "traditional" according to the discussions in Dougall and Gaumnitz (1975) and Ritter (1968) of the composition of bank balance sheets during the late fifties through the early and mid sixties. Dougall and Gaumnitz discuss typical assets for the commercial banking industry, and Ritter provides evidence of the overwhelming preponderance of demand and savings deposits to support commercial bank assets.

8. According the Dixon and Massey [1969] p. 355, "The level of significance for a non-parametric method is not affected by the population distribution." Further, both Dixon and Massey and Mason [1978] recommend non-parametric statistics for small samples. In this study, only a small number of observations are available on some variables for the earlier period.

9. According to Dougall and Gaumnitz (1975), the proportion of commercial bank assets composed of these categories was:

	1955	1960	1965	1970
Non-Insured Real Estate*	2.2%	3.1%	4.3%	4.6%
Total Securities**	2.3	2.0	2.2	1.7
Financial Institutions	0.3	3.0	4.1	3.2

*This category includes the value of all multi-family and commercial and industrial mortgages listed by Dougall and Gaumnitz. Other mortgages (farm and 1-4 family) are assumed to be under some government or quasi-government insurance plan.
**Generally, loans for purchasing of securities, including margin loans, no separate break out given.

10. According to Summers (1978), "For the U.S. banking industry, loans to individuals remained steady, between 21 and 22 percent of total gross loans from 1962 through 1976".

11. Eisenbeis, "...the combination of higher yielding alternatives, accomodating tax laws, regulation Q ceilings and reserve requirements, has resulted in a significant expansion of the foreign activities of U.S. banks."

12. According to Ritter (1968), savings deposits increased to 77% of total time and savings deposits (for all commercial banks) in 1961 and then began falling to 65% of total time and savings deposits. This means that savings deposits traditionally financed as much as 55% to 60% of total bank assets.

13. The results are not sensitive to the index being equally or value weighted. In the case where we used the value weighted index, both the beta coefficient, b2 and the R2 of the model were somewhat less than when the equally weighted index was used. However, the shifts in the "beta" were in the same direction, but never significant.

14. "The bank holding company has become the dominant form of banking organization in the sense that more than 70 percent of total domestic banking deposits are in bank subsidiaries of holding companies. It has enabled an increasing proportion of banking activities to be conducted in a less regulated environment outside of bank subsidiaries. For example, parent holding companies have begun to play an important role in financing both bank and nonbank activities through commercial paper and small note sales and through debt issues, many of which were (until recently) not subject to Regulations Q & P. Incentives for such financing were also accomodated by more lenient capital and other regulatory policies of the Federal Reserve."

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Appendix I

SAMPLE FOR GROWTH AND PROFITABILITY TESTS

1. Bank of New York
2. Bankers Trust New York Corp.
3. Chemical New York Corp.
4. Detroitbank Corp.
5. First Wisconsin Corp.
6. Harris Bankcorp Inc.
7. Marine Midland Banks
8. J.P. Morgan & Co.
9. Northern Trust Corp.
10. Ameritrust Corp.
11. Bancohio Corp.
12. Bankamerica Corp.
13. Chase Manhattan Corp.
14. Citicorp
15. Continental Illinois Corp.
16. Crocker National Corp.
17. First Bank System, Inc.
18. First Chicago Corp.
19. First City Bancorp (Texas)
20. First International Bancshares
21. First National Boston Corp.
22. Irving Bank Corp.
23. Manufacturers Hanover Corp.
24. Manufacturers National Corp.
25. Mellon National Corp
26. Merchantile Bancorporation
27. Mercantile Texas Corp.
28. Michigan National Corp.
29. NCNB Corp.
30. NBD Bancorp Inc.
31. National City Corp.
32. Northwest Bancorporation
33. Philadelphia National Corp.
34. Pittsburg National Corp.
35. Ranier Bancorp.
36. Republic New York Corp.
37. Republic of Texas Corp.
38. Seafirst Corp.
39. Security Pacific Corp.
40. Southeast Banking
41. Texas Commerce Bancshres
42. U.S. Bancorp
43. Valley National Corp.
44. Wachovia Corp.
45. Wells Fargo & Co.

Of the top fifty (50) banks (in asset size) as of 12/31/80, data for these forty-five (45) banks were available from COMPUSTAT.

APPENDIX II

Market Performance Sample

1. BANK OF NEW YORK CO INC
2. BANK OF VIRGINIA CO
3. BANKAMERICA CORP
4. BANKERS TRUST NEW YORK CORP
5. BARNETT BANKS OF FLORIDA
6. CHASE MANHATTAN CORP
7. CHEMICAL NEW YORK CORP
8. CITICORP
9. CONTINENTAL ILLINOIS CORP
10. CROCKER NATIONAL CORP
11. EQUIMARK CORP
12. FIDELITY UNION BANKCORP
13. FIRST CHICAGO CORP
14. FIRST CITY BANKCORP (TEXAS)
15. FIRST WISCONSIN CORP
16. GENERAL BANCSHARES
17. HARRIS BANKCORP INC
18. INDUSTRIAL NATIONAL CORP
19. IRVING BANK CORP
20. MANUFACTURERS HANOVER CORP
21. MERCHANTILE TEXAS CORP
22. MORGAN (J.P.) & CO
23. NCNB CORP
24. NORTHWEST BANCORPORATION
25. REPUBLIC NEW YORK CORP
26. REPUBLIC OF TEXAS CORP
27. SEAFIRST CORP
28. SECURITY PACIFIC CORP
29. SOUTHEAST BANKIG CORP
30. SOUTHWEST BANCSHARES
31. UNION COMMERCE CORP
32. UNITED JERSEY BANKS
33. WACHOVIA CORP
34. WELLS FARGO & CO

These are the firms listed on the New York Stock Exchange or the American Stock Exchange and for which any data was available from the CRSP tapes.