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Author(s): Marcia Millon Cornett and Hassan Tehranian

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An Examination of the Impact of the Garn-St. Germain Depository Institutions Act of 1982 on Commercial Banks and Savings and Loans

MARCIA MILLON CORNETT and HASSAN TEHRANIAN*

ABSTRACT

This paper evaluates the effects of events leading to the passage of the Garn-St. Germain Depository Institutions Act of 1982. The evidence suggests that the call for reform by President Reagan's Housing Commission and the Senate passage of the bill produced positive abnormal returns to stockholders of large savings and loans and commercial banks. Stockholders of small S&Ls and banks, on the other hand, generally experienced negative abnormal returns. Furthermore, when hopes of passage of the Act faded, significant negative (positive) abnormal returns were experienced by stockholders of large (small) S&Ls and banks.

THIS STUDY EXAMINES THE impact of the passage of the Garn-St. Germain Depository Institutions (GSGDI) Act of 1982 on commercial bank and savings and loan stockholder returns. The GSGDI Act represents one of two major revisions of the financial system over the last twenty years (the other being the Depository Institutions Deregulation and Monetary Control Act of 1980¹). The proposal for such a change reflected the growing inadequacy of the regulatory structure of financial institutions to adapt to rapid changes in technology, shifting consumer demands for financial services and extremely volatile interest rates. Efforts to reform the financial system resulted in passage of the GSGDI Act of 1982 which included provisions seeking to improve both the implementation of monetary policy and the degree of equity in the regulation of financial institutions. Such improvements were intended to reduce the operational and financial risk of financial institutions.

A central issue in the economics of regulation is whether regulatory actions benefit the economic agents they are intended to benefit. A large body of literature exists which examines the economic effects of regulation. Much of this literature has utilized the concepts and methods of welfare economics to assess the extent

* Cornett is an Assistant Professor in the Finance Department, School of Business, Southern Methodist University. Tehranian is a Professor in the Finance Department, School of Management, Boston College. The authors wish to thank Sankar De, Thomas Downs, Lucy Reuben and William Wilhelm for comments. We also thank the editor, Stephen A. Buser and an anonymous referee for helpful and stimulating comments. An earlier version of the paper was presented at the 1988 Annual FMA Meetings. The first author acknowledged financial support from the Women's Financial Series at Southern Methodist University. Finally, thanks are due to Afarin Sadr and Naveed Esmaili for their research assistance.

¹ Allen and Wilhelm (1988) and Cornett and Tehranian (1989) examine the impact of the Depository Institutions Deregulation and Monetary Control Act of 1980 on stock prices of various depository institutions.

to which regulation affects market reactions. For example, in his seminal article, Stigler (1971) envisions a positive economics of regulation as specifying the arguments underlying the supply and demand for regulation. That is, the good being transacted in the political market is a transfer of wealth, with constituents on the demand side and their political representatives on the supply side. Accordingly, the market distributes more of the good to that group of constituents whose effective demand is highest. Thus, in this economic approach to regulation, legislators do not necessarily promote the general welfare because any benefits are captured by a small but dominant group with the largest per capita stake.²

Only a few studies, however, have employed financial theory to analyze the impact of regulatory changes. As argued by Schwert (1981), the use of financial data is more powerful than other measures because asset price movements incorporate all relevant information as soon as it becomes available. Stigler and Friedland (1962), who measure the impact of electric utility price regulation between 1907 and 1920, were among the first to use market data to measure the effects of regulation.³

More recently, stock market data has been used to measure the effect of various regulatory changes in Allen and Wilhelm (1988), Binder (1985a, 1988), Chen and Mervill (1986), Clarke (1980), Cornett and Tehranian (1989), Espahbodi and Tehranian (1988), Maloney and McCormick (1980), Rose (1985), Schipper and Thompson (1983), and Smith, Bradley and Jarrell (1986).⁴ These studies utilize a financial theory paradigm in testing for the effects of informational change associated with regulatory reform on stock prices.⁵

In addition, several studies have found that the effects of a regulatory change

² Peltzman (1976) expands upon Stigler's (1971) model in an effort to determine the optimal size of the dominant group. He finds that the cost of using the regulatory process limits not only the size of the dominant group but also the gains. Posner (1974), Pyle (1974), Scott and Mayer (1971) and Taggart and Greenbaum (1978) provide additional insights into the economic effects of regulation.

³ This early article, however, had a serious weakness in that a significant stock price reaction resulting from the regulatory change would not likely show up when it is averaged in with price changes occurring over the entire thirteen year period of study.

⁴ Allen and Wilhelm (1988) and Cornett and Tehranian (1989) test stock market reactions to the Depository Institutions Deregulation and Monetary Control Act of 1980. Binder (1985a) uses stock returns to measure the effects of twenty regulatory changes which occurred since 1887. Binder (1988) examines the effect of the Sherman Antitrust Act on railroad stock prices. Chen and Mervill (1986) use capital market data to examine divestiture effects pertaining to deregulation associated with the breakup of AT&T. Clarke (1980) shows that the adoption of fuel adjustment clauses between 1965 and 1974 resulted in reduced risk, but no abnormal returns, for shareholders of the regulated electric industries. Espahbodi and Tehranian (1989) examine changes in FASB accounting regulations. Maloney and McCormick (1980) analyze the effects of the cotton-dust standard which was proposed by the National Institute of Occupational Safety and Health in 1974 on stock returns of textile manufacturers. Rose (1985) examines stock market reactions to regulatory changes in the motor carrier industry. Schipper and Thompson (1983) evaluate the impact of a group of merger-related changes on security returns. Finally, Smith, Bradley and Jarrell (1986) use stock prices to identify the economic effect of oil price regulation.

⁵ As a result, a regulatory effect which has been documented is the incurrence of pecuniary economies by the regulated firm in its resource market. Furthermore, because of the protected nature of its product market, all or a portion of the operational and financial risk is reduced. These additional returns may be thought of as indirect subsidies passed from consumers and non-regulated producers to the regulated firm. Thus, investors react to the indirect subsidy by factoring above normal returns into the assessment of future profitability.

are not consistent throughout the industry. The economic theory of Stigler (1971) posits that one group or coalition can use the regulatory process to improve its relative competitive position within the industry. Posner (1974) points out that the differential effects of regulatory change on various industry members will cause members to campaign for regulation in a differential manner. More specifically, Stigler (1974) argues that the incentive of large firms within the industry may differ substantially from their smaller counterparts. Empirical evidence supports these views. James (1983) finds that bank deregulation of deposit rate ceilings resulted in gains for wholesale banks but losses for commercial banks. Allen and Wilhelm (1988) present evidence that the Depository Institutions Deregulation and Monetary Control Act of 1980 provided a wealth transfer from non-Federal Reserve System member banks and Savings and Loans (S&Ls) to Federal Reserve Member Banks. Furthermore, Cornett and Tehranian (1989) find that the banking deregulation passed in 1980 benefited stockholders of large banks and savings and loans but produced negative abnormal stock returns for small banks and savings and loans.

The results of this study indicate that the GSGDI Act of 1982 did produce significant changes in the value of commercial banks and savings and loans. Specifically, two announcements concerning the passage of the Act are found to have produced significant positive abnormal returns to stockholders of large commercial banks and large S&Ls *and* significant negative abnormal returns to stockholders of small commercial banks and small S&Ls: 1) President Reagan's Housing Commission's call for a sweeping expansion of the powers of thrift institutions and banks, and 2) the Senate passage of the Garn-St. Germain bill. At one point during the legislative period, the bill faltered in the Senate. This announcement resulted in a significant negative abnormal return to stockholders of large banks and large S&Ls and a significant positive abnormal return to stockholders of small banks and S&Ls.

The remainder of the paper is organized as follows. Section I describes the background and economic consequences of the Garn-St. Germain Depository Institutions Act of 1982. Section II introduces the data, methodology and testable hypotheses concerning the returns to common stockholders of commercial banks and savings and loans. Section III presents the results. Finally, Section IV concludes the paper.

I. Major Changes Introduced by the Garn-St. Germain Act

The introduction and passage of the Garn-St. Germain Depository Institutions Act of 1982 was the result of severe pressure on the profitability and market share of savings and loan institutions. Although the Depository Institutions Deregulation and Monetary Control Act (DIDMCA) of 1980 was passed to deal with the problems facing all depository institutions, many savings and loans that were financially distressed in 1980 were bankrupt in 1982. The major source of distress in this industry was the high interest rate level experienced in the United States in 1981 and 1982. During these years a number of S&Ls were, in fact, forced to pay higher rates to attract funds than the rates they were earning on their portfolios of assets.

Additionally, rapid technological advances and increased competition from nonbank institutions compounded the problems facing the S&L industry. For example, although the DIDMCA of 1980 allowed S&Ls to relax deposit rate ceilings and lending powers, their ability to offer interest-bearing negotiable orders of withdrawal was extended only to individuals and nonprofit organizations, and not to business accounts. Thus, the 1980 legislation did not allow for changes which were extensive enough to cure the ailing S&L industry.

The severe conditions facing the S&L industry had regulators worried about the financial system as a whole. Congress, in arguing for major reform, feared the potential for a collapse of the entire financial system and, particularly, the possibility of a run in the commercial banking industry should S&Ls fail in large numbers. Adding to these fears was the inability of financial institutions to collect interest or principal on the growing indebtedness of developing countries. At the end of 1982 domestic financial institutions had about \$365 billion in loans outstanding to 145 developing countries. The major borrowers in difficulty (Argentina, Brazil and Mexico) had loans outstanding which amounted to more than 84 percent of the capital of the lending institutions (see Fieleke (1987)). The changes in the economic and financial conditions resulted in a demand for further reform of the financial system, and eventually, the passage of the Garn-St. Germain Depository Institutions Act of 1982.

The reforms introduced by the GSGDI Act were intended to affect the very nature of the financial industry and, in particular, the S&L industry. The Act had both short- and long-run implications. In the short-run, the Act proposed to rescue and support the S&Ls until the long-run reforms were effective. In the long run, the Act proposed to reform the industry in such a way that it would remain viable and competitive regardless of interest rate levels.

The major changes contained in the Act fall into two broad categories.⁶ The first category (Titles I and II of the Act) gave regulatory agencies power to deal with troubled banks and thrifts. The Federal Deposit Insurance Corporation (FDIC) or the Federal Savings and Loan Insurance Corporation (FSLIC) were allowed to make deposits, purchase assets or assume liabilities of any insured institution to prevent closing, to restore normal operations or to lessen the risk to the FDIC or FSLIC posed by that institution. In the event that an insured institution was closed or about to be closed, the FDIC or FSLIC were given the power to step in and do whatever was necessary to protect the institution. In addition, the FDIC or FSLIC were permitted to issue net worth certificates to provide capital assistance to troubled S&Ls.

The second category of reforms dealt with changes in the sources and uses of funds allowed to depository institutions (Titles III, IV, VII and VIII⁷). The major changes in the sources of funds was the authorization of money market deposit accounts (MMDA), an account that is fully competitive with shares issued by money market funds. In addition, the Act allowed depository institutions to issue interest bearing transaction (NOW) accounts to federal, state and local governments, and demand deposit accounts to persons or organizations that had a

⁶ For details of the GSGDI Act of 1982 see Cooper and Fraser (1986).

⁷ Other amendments which do not fit into the two broad categories described in this study include Title V, which streamlined the regulatory process for credit unions, and Title VI, which prohibited bank holding companies from selling or underwriting insurance.

business relationship with the institution. The implementation of these reforms made it possible for depository institutions to compete for funds regardless of the level of interest rates in the economy.

Reforms affecting the uses of funds include the following. Federal S&Ls were allowed to increase the percentage of commercial and consumer loans in their portfolios. They were also allowed to invest, for the first time, in state and local government revenue bonds. Member banks saw an increase in the amount that could be loaned to any single borrower. Finally, state chartered institutions were allowed to offer the same type of adjustable rate mortgages authorized for federally chartered institutions. These changes were intended to broaden and diversify the assets held by S&Ls and banks and to increase the proportion of rate-sensitive assets in the portfolio.

In summary, the GSGDI Act of 1982 was intended to save the S&L and mutual savings bank industry. At the same time it continued the deregulation of the overall financial institutions industry and allowed depository institutions to compete with nondepository institutions for service demand. Two groups of financial institutions which greatly benefited from the passage of the GSGDI Act are large savings and loans and large commercial banks. Deregulation in the form of the introduction of MMDAs and NOW accounts to governmental agencies allowed these institutions access to funds that regulation had previously prohibited them from obtaining. Deregulation also allowed S&Ls to invest these funds in a manner that better insulated the institutions against fluctuating interest rates. The passage of the GSGDI Act provided large S&Ls with the resources needed to compete directly with other depository institutions (i.e., commercial banks) as well as nonregulated financial institutions (i.e., money market funds and brokerage houses). In addition, as a result of the GSGDI Act national banks experienced an increase in their operating flexibility (e.g., lending limits to any single customer were extended) which, like S&Ls, allowed them to compete more directly with non-regulated financial institutions.

Contrary to the impact of the GSGDI Act on large depository institutions, small S&Ls and commercial banks received fewer of the overall benefits from deregulation. Like their larger counterparts, small S&Ls and banks were given better access to borrowed funds, as well as all other benefits associated with the GSGDI Act. Although these changes mitigated the disintermediation problem in the short run, it was the small S&Ls and banks which incurred the majority of the long-run costs associated with increased competition. With the injection of competition presented by the GSGDI Act the weakest financial institutions will eventually be driven out of the competitive market. In this industry, as in most other industries (see the IO literature, e.g. Demsetz (1973)) the largest firms tend to be the most efficient and, therefore, these institutions are least likely to fail. The increased incidence of failure and condensation of the industry, which naturally accompanies increased competition, therefore, is more likely to occur in smaller less cost efficient depository institutions. Accordingly, small S&Ls and banks are expected to experience few of the long-run benefits as a result of the passage of the GSGDI Act.⁸

⁸ Evidence in the brokerage industry finds that this is not always the case. As pointed out by Stoll (1979), there was concern that small and regional brokerage firms would be the least able to withstand the competition introduced by the competitive commission rate structure introduced by the Securities

Given the potential impact on savings and loans and banks described above, it is hypothesized in this paper that the passage of the GSGDI Act of 1982 should have produced a measurable impact on the returns to the stockholders of these institutions. In particular, it is hypothesized that the stockholders of large S&Ls and commercial banks experienced wealth increases, while stockholders of small S&Ls and commercial banks experienced wealth decreases as a result of the passage of the Act. In the next sections of the paper, the effect of the Act on stock returns is examined.

II. Data, Methodology and Hypotheses

A. Data

The data analyzed in this study consist of daily stock returns for commercial banks and S&Ls listed on the New York Stock Exchange (NYSE), the American Stock Exchange (ASE) or in the Over-The-Counter (OTC) market between August 28, 1981 (when consideration of the regulation was first announced) and October 16, 1982 (when the Garn-St. Germain Act was signed into law). In order to be included in the final sample, a bank or S&L must trade during this entire period. Daily return data were collected from the Center for Research in Security Prices (CRSP) data tapes.

The tests performed on the sample require identification of dates on which major new information about the regulation (GSGDI Act) became publicly available. News items pertaining to changes in regulation are identified by examining the *New York Times Index*, the *Wall Street Journal Index*, the *Washington Post Index*, trade journals in banking and textbooks on bank regulation. Three time periods are examined from these sources. The year preceding the formal proposal of the regulation to Congress is checked for any information. Significant information during the period of enactment is then identified. Finally, a period of one year following the final announcement of passage (this would be the signing of the Act into law) is checked for any significant information concerning the regulation. This process produced fourteen events in which important information about passage of the regulation was announced. Table I lists these fourteen events and the date on which they occurred.⁹

In order to test for stock price reaction to regulatory change, it is necessary that the events chosen for the test were unanticipated by the markets. Examining the articles relating to the fourteen events studied here, it appears that in several instances new information was contained in the announcement. For example, even though three very general statements about the need for deregulation had previously been reported (Events 1, 2 and 3 in Table I), Event 4 appears to be

Act Amendment of 1975. He shows, however, that the size distribution of failing firms subsequent to the implementation of this commission structure was no different from that of surviving firms.

⁹ Many other announcements besides the fourteen listed in Table I were made concerning the GSGDI Act. For example, on 11/16/82 the Depository Institution Deregulation Committee announced the details (i.e., the minimum deposit requirements, interest rate ceilings, etc.) of the money market accounts issued by banks and savings and loans in accordance with the GSGDI Act. In this paper, however, only those announcements referring to major changes in the reform, stumbling blocks to passage or passage by a key group are analyzed.

Table I
Event Descriptions

This table lists 14 major announcements (and announcement dates) leading up to the passage of the Garn-St. Germain Depository Institutions Act of 1982.

Event	Date	Description
1	8/28/81	Administration hopes to develop plans by end of 1981 for further deregulation of the nation's financial system.
2	9/15/81	Major bill to decontrol banking industry is seen getting before Congress in 1981.
3	10/30/81	Volcker, Chairman of Fed. Res. Board, said many banking laws need to be loosened, but he opposes, at least for now, some proposals backed by Reagan Administration, including one that would let banks offer money market funds.
4	1/7/82	President Reagan's Housing Commission calls for sweeping expansion of powers in thrift institutions and commercial banks so that they can pump more money into home mortgage market; proposals would spur evolution of financial institutions into supermarkets offering consumers broad range of financial services in deregulated environment.
5	1/10/82	Banks battle for deregulation in face of moves by non-bank companies into financial areas discussed.
6	2/11/82	Witnesses from financial industry urge enactment of bill to deregulate financial services institutions, but disagree over steps. Senate Banking Committee Chairman, Sen. Garn, warned Congress may not act this session on bank deregulation unless banking and securities industries resolve differences.
7	5/6/82	House subcommittee approves financial aid program for troubled banks.
8	5/12/82	House Banking Committee approves St. Germain bill to set up \$8.5 billion in Treasury backed funds to guarantee net worth of failing banks and financial institutions.
9	5/21/82	House approves St. Germain bill.
10	5/27/82	Assistant Treasury Secretary Roger Mehle tells Senate Banking Committee hearing on aid bill sponsored by Sen. Garn that the House passed bill will not conform with standards set by Financial Act. Standards Board for reporting net worth.
11	8/6/82	Banking bill falters in Senate. Sen. Garn says he still plans to push banking bill.
12	8/20/82	Senate Banking Committee approves legislation to bolster ailing savings and loans associations, while helping banks and thrift institutions compete with money market funds.
13	9/25/82	Senate passes bill widening bank powers.
14	10/16/82	Reagan signs bill putting banks and S&Ls in competition with money market funds.

the first release of any specific details pertaining to the regulation. It was on this day that the President's Housing Commission issued its "preliminary report" describing the legislation (see *New York Times*, January 7, 1982, Section 4, page 1). Event 8, the House Banking Committee approves the St. Germain bill, also appeared to be unanticipated. As reported in the article, the "legislation met with rigorous resistance from several Republicans" and was "approved in a 25-15 vote" (see *New York Times*, May 6, 1982, Section 4, page 1). A final, although not inclusive, example is Event 11, banking bill falters in Senate. Senator Garn had scheduled a meeting to draft a final version of the bill. That day, realizing there was significant disagreement about the bill among committee members, Senator Garn cancelled the meeting indefinitely. As reported, if the bill were to fail it would be a "bitter blow to commercial banks" (See *Washington Post*, August 6, 1982, Section C, page 1). Thus, many of the events examined here did, in fact, contain new information concerning the passage of the regulation.

To insulate the relevant announcements from announcements of other major corporate events (e.g., unexpected dividends, mergers, etc.) around the same period, the corporate histories contained in the *Wall Street Journal Index* were reviewed for each bank and S&L in the tentative sample for a six-month period prior to each announcement date. Firms which experienced a confounding corporate event were eliminated from the sample. A sample of 200 commercial banks and 28 savings and loans resulted from this screening.

In order to isolate the effect of the Garn-St. Germain Act on large versus small depository institutions, the sample set was subdivided into four subsets: large commercial banks, small commercial banks, large S&Ls and small S&Ls. In general, only the largest financial institutions are listed on the NYSE or ASE, while smaller financial institutions are traded in the OTC market. Accordingly, the groups of large banks and S&Ls are those listed on the NYSE and ASE, while the groups of small banks and S&Ls are those traded in the OTC market. This process resulted in a sample set consisting of 42 large banks, 158 small banks, 12 large S&Ls and 16 small S&Ls. The average deposit size (in millions of dollars) at the end of 1980 for the four subgroups is \$13,091 (standard deviation = \$19,074), \$1,316 (standard deviation = \$1,194), \$2,458 (standard deviation = \$2,484) and \$538 (standard deviation = \$249), respectively.

B. Methodology

The stock price impact of regulatory reform is estimated by employing a Multivariate Regression Model (MVRM) similar to that used in Schipper and Thompson (1983), Binder (1985a,b, 1988), Rose (1985), Smith, Bradley and Jarrell (1986) and Cornett and Tehranian (1989). The MVRM is used because it explicitly incorporates heteroscedasticity across equations and contemporaneous dependence of the disturbances into the hypothesis tests. Specifically, as pointed out by Fama (1976), because the magnitude of the unsystematic risk differs across firms, the variance in abnormal returns will vary across firms. In addition, Schwert (1981) states that individual asset returns for firms in the same industry measured over a common time period are contemporaneously correlated because the firms will react similarly to any unanticipated event. Thus, contrary to the requirements of the standard event study methodology, residuals will not be

identically and independently distributed. The MVRM model uses a system of seemingly unrelated equations which explicitly conditions the return generating process on the occurrence or nonoccurrence of an event. This conditioning is accomplished by appending zero-one dummy variables to the market model equation. The variable is set equal to one if an event occurred and equal to zero otherwise. The coefficients multiplying the event dummy variables measure the event's impact on stock returns. The model, therefore, implies a system of portfolio return equations for each of four portfolios: (1) large S&Ls; (2) small S&Ls; (3) large commercial banks; and (4) small commercial banks.^{10,11}

$$\begin{aligned}
 \tilde{R}_{1t} &= \alpha_1 + \beta_{11}\tilde{R}m_{t-2} + \beta_{12}\tilde{R}m_{t-1} + \beta_{13}\tilde{R}m_t \\
 &\quad + \beta_{14}\tilde{R}m_{t+1} + \beta_{15}\tilde{R}m_{t+2} + \sum_{k=1}^K \gamma_{1k}D_{kt} + \tilde{e}_{1t}, \\
 \tilde{R}_{2t} &= \alpha_2 + \beta_{21}\tilde{R}m_{t-2} + \beta_{22}\tilde{R}m_{t-1} + \beta_{23}\tilde{R}m_t \\
 &\quad + \beta_{24}\tilde{R}m_{t+1} + \beta_{25}\tilde{R}m_{t+2} + \sum_{k=1}^K \gamma_{2k}D_{kt} + \tilde{e}_{2t}, \\
 \tilde{R}_{3t} &= \alpha_3 + \beta_{31}\tilde{R}m_{t-2} + \beta_{32}\tilde{R}m_{t-1} + \beta_{33}\tilde{R}m_t \\
 &\quad + \beta_{34}\tilde{R}m_{t+1} + \beta_{35}\tilde{R}m_{t+2} + \sum_{k=1}^K \gamma_{3k}D_{kt} + \tilde{e}_{3t}, \\
 \tilde{R}_{4t} &= \alpha_4 + \beta_{41}\tilde{R}m_{t-2} + \beta_{42}\tilde{R}m_{t-1} + \beta_{43}\tilde{R}m_t \\
 &\quad + \beta_{44}\tilde{R}m_{t+1} + \beta_{45}\tilde{R}m_{t+2} + \sum_{k=1}^K \gamma_{4k}D_{kt} + \tilde{e}_{4t},
 \end{aligned} \tag{1}$$

where

$\tilde{R}_{jt}$ = the return on a portfolio, j ($= 1, 2, 3$ and 4), of commercial banks or S&Ls on day t ($T = 504$ daily observations from January 1981 through December 1982);

$\tilde{R}m_t$ = the return on the CRSP equally weighted index for large banks and large S&Ls, and return on the CRSP NASDAQ tape equally weighted composite index for small banks and small S&Ls on day t ,¹²

α_j = an intercept coefficient for portfolio j ($= 1, 2, 3$ and 4);

$\beta_{j1} - \beta_{j5}$ = risk coefficients for the j th portfolio ($j = 1, 2, 3$ and 4);¹³

γ_{jk} = the effect of the K regulatory changes on the j th portfolio ($K = 14$ in this study);

¹⁰ The models used in previous studies are slightly different from equation (1). We employed the market return at several leads and lags as an explanatory variable to overcome the possibility of the nonsynchronous trading in our sample, especially for the sample of small banks and savings and loans (Scholes and Williams, 1977). An anonymous referee is acknowledged for motivating this approach.

¹¹ Flannery and James (1984) find that commercial bank stock returns are sensitive to interest rate changes. Accordingly, some empirical studies include interest rate changes as another variable in the return equation. Over the period studied here no consistent pattern of interest rates prevailed and, therefore, no interest rate variable is included.

¹² Similar results were also obtained using the CRSP NASDAQ tape Bank Index.

¹³ The pre (before 8-28-81) and post (after 10-16-82) GSGDI Act periods were examined for significant shifts in the risk parameters for each of the four subgroups of depository institutions. Specifically, the procedure introduced by Firth (1980) was employed. No significant change in β_j for any of the four subgroups during the period prior to the first announcement relating to the GSGDI Act (8-28-81) and a period after the Act was signed into law (10-16-82) was found.

D_{kt} = dummy variables which equal 1 during the period of the k th announcement and 0 otherwise;¹⁴ and,

$\tilde{e}_{jt}$ = random disturbances which are assumed to be i.i.d. normal, independent of the return on the market and the event announcement variable.

Following Theil (1971, p. 306), the system of regressions in equation (1) can be generalized as

$$\begin{bmatrix} \tilde{R}_1 \\ \tilde{R}_2 \\ \vdots \\ \tilde{R}_J \end{bmatrix} = \begin{bmatrix} \tilde{X} & 0 & \dots & 0 \\ 0 & \tilde{X} & \dots & 0 \\ & & \ddots & \\ 0 & \dots & \dots & \tilde{X} \end{bmatrix} \begin{bmatrix} \beta_1 \\ \beta_2 \\ \vdots \\ \beta_J \end{bmatrix} + \begin{bmatrix} \tilde{e}_1 \\ \tilde{e}_2 \\ \vdots \\ \tilde{e}_J \end{bmatrix}, \quad (2)$$

where

$\tilde{R}_j = (\tilde{R}_{j1}, \tilde{R}_{j2} \dots \tilde{R}_{jT})$ (a $1 \times T$ vector);

$\tilde{X}$ = a $T \times N$ matrix of independent variables which is the same for each equation in the system;

β_j = a $N \times 1$ vector of coefficients;

$\tilde{e}_j$ = a $T \times 1$ vector of disturbances,

or

$$\tilde{R} = \tilde{X}\beta + \tilde{e}. \quad (3)$$

Estimation of the multivariate regression model in equation (2) assumes that the residuals are independent and identically distributed within each equation. Similar to Smith, Bradley and Jarrell (1986), however, it is unlikely that the abnormal returns created by the events under study are fixed but unknown effects that are fully explained by the arguments in equation (2). If so, the conditional and unconditional distributions of abnormal returns would not be the same and the variance-covariance matrix for the residuals in equation (2) would not be independent of the realization of the event. Thus, the estimation of the system in equation (2) must be adjusted for the possible heteroscedasticity.¹⁵ To correct for heteroscedasticity a procedure developed by White (1982) and Chamberlain (1982), in which the residuals in the variance-covariance matrix are allowed to vary across observations, is employed.

The main advantage of the MVRM methodology used in this study is in the joint hypothesis testing, since heteroscedasticity across equations and contemporaneous dependence of the disturbances are explicitly incorporated into the hypothesis test. To test the joint hypotheses in the MVRM, the Wald statistics chi-squared test defined by Theil (1971) and employed by Schipper and Thompson (1983) is employed.¹⁶

¹⁴ Depending on what time during the trading day the announcement was made, either the publication day or the day before might be the relevant announcement day. Since the exact time of the announcement is unknown, the announcement period is the two trading days, $t = -1$ and $t = 0$, relative to the published announcement.

¹⁵ See Smith, Jarrell and Bradley (1986, p. 477) for a detailed discussion of this situation.

¹⁶ Binder (1985b) presents evidence that in some cases the Wald test might be biased against the null hypothesis when there are 60 or even 250 observations per equation. Thus we also test our

C. Testable Hypotheses

The standard hypotheses about average or cumulative average abnormal returns, as well as more general hypotheses, can be tested within the framework discussed above. Specifically, the following hypotheses are formulated and tested.

Hypothesis 1: $\gamma_{jk} = 0 \forall j, k$; all abnormal returns for each portfolio jointly equal zero (all 56 abnormal returns).

Hypothesis 2: $\gamma_{jk} = 0 \forall j$; the abnormal returns for each portfolio equal zero on announcement day k .

Hypothesis 3: $\sum_{k=1}^K \gamma_{ik} \cdot \sum_{k=1}^K \gamma_{jk} = 0 \forall i, j (i \neq j)$; the economic impact of the act is the same for each portfolio.

III. Empirical Results

As previously mentioned, an advantage of MVRM methodology is the ability to do joint hypotheses testing since heteroscedasticity across equations and contemporaneous dependence of the disturbances are explicitly incorporated into the hypothesis test. The joint hypotheses tests are of special importance when the MVRM methodology is applied to regulatory events since, as discussed in the introduction, there is good reason to suspect that regulation benefits some firms and hurts others. If so, Hypotheses 1 and 2 are likely to detect the effects of regulations when some firms gain and others lose.

A. Test of Hypothesis 1: All Abnormal Returns for Each Portfolio Jointly Equal Zero

To test Hypothesis 1, which examines all the announcement days to determine whether there are non-zero abnormal returns among all 56 abnormal returns, the following null hypothesis was used:

$$H_0: \gamma_{jk} = 0 \forall j, k.$$

The value of the test statistics under restrictions implied by H_1 is 108.27, which, when compared to the critical value, $\chi^2(56, 0.01) \approx 88.38$, suggests rejection of the null hypothesis. Thus, it appears that there are significant abnormal returns extant among the 56 announcements. In the next sections, the impact of the 14 separate announcements and the effect of the announcements on various subgroups of firms within the industry is examined.

B. Test of Hypothesis 2: The Abnormal Return for Each Portfolio Equals Zero on Announcement Day k

Table II presents the results of the MVRM analysis which shows the average abnormal returns and the t -statistics for each of the fourteen events across the 12 large savings and loans, 16 small savings and loans, 42 large commercial banks and 158 small banks. Column 1 lists the event. Columns 2 through 5 present results for four portfolios.

hypothesis by applying an F test defined by Rao (1973) and used by Binder (1985a,b). The F -statistics were smaller, but in no case change any of our significant returns shown in the discussion of the results.

Table II
Test of Hypothesis that All Abnormal Returns for Each Portfolio
Jointly Equal Zero

Panel A of this table presents portfolio abnormal returns and *t*-statistics (in parentheses) for portfolios of Banks and S&Ls at each of the 14 announcements leading to the passage of the Garn-St. Germain Act. These estimates are the coefficients from a regression of equally-weighted portfolio returns and dummy variables corresponding to the 14 events. Dummy variable is equal to 1 during the two-day ($t = -1$ and $t = 0$ relative to the announcement day) announcement period and zero otherwise. Panel B presents the results of the Wald test for Hypothesis 2, which measures the significance of portfolio returns at each of the 14 announcements.

Event	Panel A: Portfolio Abnormal Returns (in %)				Panel B:
	Large S&Ls (<i>N</i> = 12)	Small S&Ls (<i>N</i> = 16)	Large Banks (<i>N</i> = 42)	Small Banks (<i>N</i> = 158)	Wald Test χ^2 - Statistic
1: Administration hopes for deregulation	1.42 (1.38)	-0.83 (-0.52)	0.37 (1.32)	0.15 (0.12)	1.50
2: Bill to come before Congress	1.64 (1.59)	-0.78 (-0.43)	0.09 (0.19)	-0.22 (-0.12)	2.82
3: Volcker opposes law	-1.52 (-1.29)	1.14 (1.01)	-0.54 (-0.96)	1.73 (1.40)	5.36
4: Housing Commission calls for change	3.93 (4.62)**	-4.63 (-3.29)**	1.21 (2.42)*	-4.02 (-2.67)**	29.84**
5: Banks battle for deregulation	0.26 (0.41)	-0.52 (0.33)	0.48 (0.86)	-0.04 (-0.10)	1.34
6: Witnesses disagree over regulation	-1.28 (-1.62)	0.46 (0.37)	-0.74 (-1.03)	0.92 (0.71)	2.16
7: House subcommittee approves program	1.61 (1.78)	-1.58 (-1.42)	1.44 (1.50)	-1.91 (-1.63)	6.56
8: House banking committee passes bill	3.01 (2.64)*	1.34 (1.27)	2.16 (2.56)*	0.86 (0.72)	7.33
9: House approves bill	1.96 (1.63)	-1.85 (-1.57)	1.40 (1.72)	-2.45 (-1.86)	1.18
10: Bill won't conform with FASB reporting	-1.36 (-1.42)	1.24 (0.92)	-0.72 (-0.79)	1.73 (1.35)	2.72
11: Bill falters in Senate	-2.94 (-2.81)*	4.90 (3.07)**	-1.93 (-2.48)*	1.96 (2.01)*	31.46**
12: Senate Banking Committee approves bill	1.75 (1.92)	-0.10 (-0.15)	1.01 (1.41)	-2.12 (-1.42)	4.34
13: Senate passes bill	4.93 (3.78)**	-3.81 (-2.99)**	2.75 (2.80)**	-3.48 (-2.62)**	33.17**
14: Reagan signs bill	2.61 (2.83)*	-1.98 (-2.12)*	1.36 (1.59)	-2.01 (-1.64)	8.98

* Significant at .05 level.

** Significant at the .01 level.

As shown in Table II, two events produced significant (at the .01 level¹⁷) two-day cumulative average abnormal returns to stockholders of large S&Ls during the period of passage of the GSGDI Act: 1-7-82—President Reagan's Housing Commission calls for sweeping changes in thrift institutions and commercial banks; and 9-25-82—Senate passes bill. For the remaining twelve events no significant investor reaction was identified. With respect to event 4 (1-7-82: President Reagan's Housing Commission calls for sweeping expansion of powers in thrift institutions), Table II indicates the average abnormal return was 3.93% ($t = 4.62$), while for event 13 (9-25-82: Senate passes bill), the average return for this event is 4.39% ($t = 3.78$).¹⁸

¹⁷ With $T = 504$ the tests used here suffer from the well known problem in econometrics that everything is statistically significant. The usual solution, which balances the probability of Type I and II errors, is to decrease the size of the test, i.e., use the .01 level of significance. This cutoff point is used throughout the paper to determine significance.

¹⁸ The standard event methodology described in Brown and Warner (1980, 1985) was also employed to detect the stock price impact of regulatory reform for each event date ($K = 14$). The residuals are

Table II column 3 presents the event announcement returns to stockholders for small S&Ls. As in the case of large S&Ls, events 4 and 13 produced significant average abnormal returns during the period of the passage of the GSGDI Act. However, in contrast to the results for large S&Ls, events 4 and 13 produced negative abnormal returns (-4.63% ; $t = -3.29$ and -3.81% ; $t = -2.99$, respectively). Furthermore, event 11 produced a two-day abnormal return of 4.90% ($t = 3.07$). Thus, the impact on stockholder wealth for small S&Ls is the opposite of that for large S&Ls.

Column 4 in Table II shows the percentage average abnormal returns of stockholders of large banks. The results for large banks are similar to those for large S&Ls reported above. Significant positive two-day abnormal returns were experienced for event 13 (2.75% , $t = 2.80$). The impact of the regulatory reform on the wealth of stockholders of large S&Ls and commercial banks appears to be similar.

Finally, Column 5 of Table II reports the percentage average abnormal returns to stockholders of small commercial banks. Examining this column, it is evident that returns for small banks were similar to those of small S&Ls. Significant negative two day abnormal returns were reported for events 4 (-4.02% ; $t = -2.67$) and 13 (-3.48% ; $t = -2.62$).

The above results suggest that several announcements associated with the passage of the GSGDI Act impacted stock prices for banks and S&Ls. A problem with these results, however, is that one announcement might be more important than the others. These tests, which assume that all announcements provide significant information, are less powerful than a test which isolates each announcement day. Such a test of the significance of each announcement day is provided in Hypothesis 2.

Column 6 in Table II presents the Wald test of Hypothesis 2 for each announcement. As reported in Table II, the χ^2 -statistics for events 4 (1-7-82), 11 (8-6-82) and 13 (9-25-82) are 29.84, 31.46, 33.17, respectively, which are statistically significant at the .01 level. Thus the null hypothesis of no abnormal returns for each portfolio can be rejected for the announcement $k = 4, 11$ and 13 .¹⁹

C. Test of Hypothesis 3: Economic Impact of the Act is the Same for Each Portfolio

In addition to the identification of the significance each announcement day, of particular interest to this study is a test of the hypothesis that the economic impact of the Act was the same for a portfolio of each type of depository institution during the entire 14 event announcement period. Focusing attention on tests that measure abnormal returns on and around all fourteen announcements provides valuable information about the wealth impact of the GSGDI on different firms within the depository institutions industry.

similar to those using multivariate regression model for each portfolio. The details of the methodology and estimation procedure and results are available from the authors upon request.

¹⁹ We also test to see whether the cumulative abnormal returns over all announcements ($K = 14$) for each portfolio jointly equal zero. The value of the test statistics under the restriction implied by the above hypothesis for portfolios of large S&Ls, small S&Ls, large banks and small banks are 44.89, 26.29, 34.19 and 30.92, respectively. Compared to the critical value of χ^2 (14, 0.01) = 29.10, these results suggest rejection of the null hypothesis for all but small S&Ls.

Using the notation in equation (3), Hypothesis 3 can be expressed in the form

$$L\beta = l,$$

where L is a $P \times N$ matrix of constants with rank P ($P \leq K$), β is the $N \times 1$ vector of coefficients estimated from (2), l is a $P \times 1$ vector of constants and P is the number restrictions tested in the system. As described in Theil (1971, pgs. 314, 402) the test statistic

$$\frac{JT - JN}{P} \frac{(\underline{l} - L\hat{\underline{\beta}})' \{L[X'(\hat{\Sigma}^{-1} \otimes I)X]^{-1}L'\}^{-1}(\underline{l} - L\hat{\underline{\beta}})}{(\hat{\underline{R}} - X\hat{\underline{\beta}})'(\hat{\Sigma}^{-1} \otimes I)(\hat{\underline{R}} - X\hat{\underline{\beta}})} \quad (4)$$

where

$\Sigma = [\sigma_{i,j}]$, $i, j = 1, 2, \dots, J$;

$\otimes$ = the Kronecker product;

T = the number of daily return observations (=504) used for estimation parameter in equation (1);

J = the number of portfolios tested; and

P = the number of restrictions tested,

is asymptotically distributed as $F(P, JT - JN)$.

A joint test of the hypothesis that the economic impact of the Act was the same for each of the four portfolios (i.e., large S&Ls, small S&Ls, large banks and small banks) can be expressed as

$$H_0: 1 \sum_{k=1}^K \gamma_{ik} - \sum_{k=1}^K \gamma_{jk} = 0 \quad \forall i, j \quad (i \neq j).$$

The value of the test implied by H_0 is 35.62 which when compared to the critical value, $F(3, 1936, 0.01)^{20} = 3.78$ suggests rejection of the null hypothesis. Thus, it is concluded that the four groups of depository institutions did not react in the same way to the passage of the GSGDI Act. Additionally, independent tests of the hypothesis,

$$\begin{aligned} H_0: \sum_{k=1}^K \gamma_{1k} - \sum_{k=1}^K \gamma_{2k} &= 0 \text{ (Large S\&Ls versus Small S\&Ls),} \\ H_0: \sum_{k=1}^K \gamma_{3k} - \sum_{k=1}^K \gamma_{4k} &= 0 \text{ (Large Banks versus Small Banks),} \\ H_0: \sum_{k=1}^K \gamma_{1k} - \sum_{k=1}^K \gamma_{3k} &= 0 \text{ (Large S\&Ls versus Large Banks),} \\ H_0: \sum_{k=1}^K \gamma_{2k} - \sum_{k=1}^K \gamma_{4k} &= 0 \text{ (Small S\&Ls versus Small Banks),} \\ H_0: \sum_{k=1}^K \gamma_{1k} - \sum_{k=1}^K \gamma_{4k} &= 0 \text{ (Large S\&Ls versus Small Banks),} \\ H_0: \sum_{k=1}^K \gamma_{3k} - \sum_{k=1}^K \gamma_{2k} &= 0 \text{ (Large Banks versus Small S\&Ls),} \end{aligned}$$

yield the test statistics:

$$\begin{aligned} F &= 52.33 \\ F &= 31.40 \\ F &= 3.36 \\ F &= 0.92 \\ F &= 40.78 \\ F &= 36.15 \end{aligned}$$

²⁰ The degrees of freedom, 1936, equal $(4 \text{ (the number of portfolios)} * 504 \text{ (the number of observations)}) - (4 \text{ (the number of portfolios)} * 20 \text{ (the number of independent variables in the regression equation 1)})$.

Given $F(1, 1936, 0.01) = 6.63$, these tests suggest that the economic impact of the regulatory act on the large savings and loans and large banks were significantly different from the impact on the small savings and loans and small banks. Specifically, the passage of the GSGDI Act resulted in significantly larger abnormal returns to stockholders of 1) large S&Ls than small S&Ls; 2) large banks than small banks; 3) large S&Ls than small banks; and 4) large banks than small S&Ls. The stockholders of large S&Ls and large banks benefitted equally in terms of abnormal returns as did the stockholders of small S&Ls and small banks.

These results suggest that shareholders of large S&Ls and large banks benefitted from the enactment of the GSGDI Act at the expense of shareholders of small S&Ls and small banks. Deregulation associated with the passage of this reform provided both banks and S&Ls with the ability to compete with non-depository institutions for funds and, in addition, saved the S&L industry from potential disaster. Given that the larger banks and S&Ls were the more efficient, least cost producers, however, the increased competition was less likely to result in an increased incidence of failure for large depository institutions. Accordingly, these institutions experienced the majority of the benefits of the increased competition and few of the costs. Rather, the costs associated with the increase in competition is borne by smaller, less cost efficient banks and S&Ls. Thus, the average excess return to stockholders of large S&Ls and banks is statistically larger than that for both small S&Ls and small banks. Finally, our pattern of wealth distribution within the industry is consistent with the economic theory of Stigler (1971).

IV. Conclusion

This paper examines the effect of a series of announcements leading up to the passage of Garn-St. Germain Depository Institutions Act of 1982 on returns to stockholders of savings and loans and commercial banks. The conditions of depository institutions, particularly those in the S&L industry, prior to the passage of the Act found them unable to compete with unregulated, non-depository institutions. Passage of the GSGDI Act was intended to correct the growing inadequacy of the structure of financial institutions to adapt to rapid changes in technology, shifting consumer demands for financial services and extremely volatile interest rates.

In this study, the examination of stock returns is used to determine the impact of regulatory reform on firms in the regulated industry. The results document that the events leading to the passage of the GSGDI Act did produce abnormal stock returns and that the impact of the GSGDI Act was not consistent throughout the industry. Specifically, shareholders of large banks and S&Ls benefitted from the introduction of increased competition resulting from the passage of The GSGDI Act, while shareholders of small banks and savings and loans experienced a loss.

It is interesting that significant abnormal returns which can be attributed to the passage of the GSGDI Act are found since Binder (1985a) shows that

regulatory events of this type are generally anticipated by the market. It appears that, because of the divergent interests of the various groups in the industry, there was considerable uncertainty about the substance and the likelihood of passage of the GSGDI Act which was resolved during the period of legislation studied here.

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