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Interfirm Stock Price Effects of Asset-Quality Problems at First Executive Corporation

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Abstract

The authors use stock return data to investigate the effects of the First Executive (FE) failure on other life insurance firms. In contrast to previous studies, they explicitly test for the separate effects of individual (retail) and institutional customer responses. The announcement of an accounting charge for junk-bond losses by First Executive Corporation triggers negative stock-price reactions for unrelated life insurers. Insurers with larger portfolio holdings of junk bonds and greater dependence on retail business, experience stronger negative reactions to the announcement. However, an earlier announcement that regulators were investigating possible junk-bond concealment at FE is positively related to dependence on retail policyholders. The reversal between the two events is consistent with retail customer perceptions responding to disproportionate media coverage, documented by others, of junk-bond problems. Tests of interactions indicate that retail policyholder responses are conditioned on the degree of junk-bond holdings, not indiscriminate. Therefore, the authors' work implies that, in the event of a future financial crisis at a large life insurer, realistic, balanced information about the condition of the industry targeted toward individual customers will be useful in preventing a surge in policy surrenders and attendant deadweight losses.

Introduction

First Executive Corporation (FE) (parent of two units called Executive Life Insurance Company in California and New York) failed in 1991 as a result of junk-bond investment losses first disclosed in 1990. First Executive had more than $15 billion in assets, making it much larger than previous insolvent life insurers. DeAngelo, DeAngelo, and Gilson (1994) argue that First Executive received a greater degree of press scrutiny and more adverse publicity than other insurers with equally serious portfolio problems. DeAngelo, DeAngelo, and Gilson (1994) conclude that the adverse publicity, along with junk-bond losses and questionable managerial actions, destroyed poli-

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cyholder and regulatory confidence and led to a "bank run" that collapsed the firm. The highly visible failure provoked increased public attention to the financial stability of life insurers and intensified an existing policy debate over the reform of insurance regulation.

A particular concern for insurance regulators is the possibility that the collapse of a large insurer will be contagious. Customers can withdraw assets from other insurers, weakening them and, in the extreme case, even causing their failure. Reorganizing or liquidating an insolvent insurance company consumes significant real resources, so a run on an otherwise sound firm imposes a social cost. If a run on other insurers is a likely consequence of an insolvency, regulators may want to impose regulations to reduce the chance of insolvency to a socially optimal level.

Fields et al. (1994) use event study methods to determine the economic impact of First Executive's failure on other life insurance companies. Fields et al. (1994) find a significant negative average stock-price impact on life insurers at the earnings announcement that preceded First Executive's failure. Fields et al. show that the reaction varies across companies with the proportions of assets invested in junk bonds and real estate, and the financial strength of the company. Fields et al. (1994) conclude that the negative response was caused by the asset quality of individual insurers.

Fenn and Cole (1994) investigate the market reaction at the time of the announcement by First Executive of significant problems in its investment portfolio. Like Fields et al. (1994), they show that asset quality is an important determinant of shareholder wealth effects and that the effect is larger for companies with significant junk-bond and commercial mortgage investments. Additionally, Fenn and Cole (1994) demonstrate larger negative stock-price reactions for life insurers that have institutional customers as represented by guaranteed investment contracts (GICs). Fenn and Cole argue that the relationship between stock-price reactions and GICs supports a policyholder-response interpretation. Specifically, they suggest that stock-market participants expected policyholders to withdraw from companies most likely to be affected by the same portfolio problems as First Executive. Fenn and Cole contrast such a policyholder response with a contagious "bank run," in which all members of the industry suffer withdrawals regardless of condition.

Like Fields et al. (1994) and Fenn and Cole (1994), this article reports an investigation of the effects of the First Executive failure on other life insurance firms' stock prices. The authors' motivation is similar in that they predict that industry-wide stock-price reactions to failure-related announcements reflect changes in market estimates of future industry cash flows. The market estimates can change because the announcements reveal new information on which investors condition their estimates, or because the unconditional expected values change. Therefore, the authors examine the relationship between the stock-price reaction and firm characteristics in order to try to distinguish between information effects and changes in unconditional expected cash flows as a result of contagion.

While similarly motivated, the authors' work nevertheless differs from Fenn and Cole (1994) and Fields et al. (1994) in several respects. The most important difference is that the authors perform a more complete test of the policyholder-response hypothesis. Fenn and Cole (1994) use GICs as a proxy for the likelihood of policyholder

response, arguing that GIC holders are institutional investors with the flexibility to make quick, low-penalty withdrawals. The authors argue that testing the policyholder-response hypothesis requires separating policyholders into two groups: institutional policyholders, represented by GIC liabilities, and individual policyholders, proxied by life insurance and annuity reserves.

The distinction between types of policyholders is important for a clear understanding of the effect of First Executive's failure on the life insurance industry. While institutional and individual policyholders have contractual flexibility to withdraw funds, individual life and annuity holders may withdraw for different reasons. Institutional investors are professional money managers and presumably assess the new information in an announcement and re-estimate the probability of a life insurance company's failing to make promised GIC payments. Individual policy and annuity holders purchase products in the retail market through an insurance agent or broker. Retail customers probably rely more heavily on media coverage and the influence of brokers when deciding to cash in a life or annuity policy. Consequently, individual policyholders are more likely to make their withdrawal decisions on the basis of what DeAngelo, DeAngelo, and Gilson (1994, 1996) call the "political correctness" of an insurer's investment policy.[1]

The authors also introduce several improvements in method. They test the relationship between the stock-price reaction and firm characteristics using an econometric technique that controls for cross-correlations among firms' stock returns and correlations between characteristics. It is important to control for such correlations in studies in which all the firms have the same event dates and are in the same industry. The correlations are likely to be nontrivial, and tests derived under the assumption of zero correlation thus are more likely to be biased and inefficient than in a study in which event dates are random across firms. Fields et al. (1994) use methods that do not control for correlations among either stock returns or characteristics, while Fenn and Cole (1994) control for return correlations but not correlations among characteristics. Also, the authors relate stock-price reactions in early 1990 to data available at the time—that is, they use balance-sheet data at the end of 1989, rather than 1990 as in Fields et al. and Fenn and Cole.[2] Additional procedural refinements in this paper include a more complete sample of life insurance firms (76, compared to 53 in the larger sample of the previous studies) and more First Executive-related event dates on which new information was released (the authors examine four events, compared to a maximum of two in the previous studies). As a consequence, the authors can develop a richer and more complete story about the effect of First Executive's failure than previously has been told.

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[1] Fenn and Cole (1994) acknowledge that it would be desirable to include other liability measures such as policy reserves, but they report that such data were unavailable.

[2] Fields et al. (1994) and Fenn and Cole (1994) use year-end 1990 data, which were not available to investors when most of the publicity about First Executive occurred (see DeAngelo, DeAngelo, and Gilson, 1994, Appendix A). As noted in Fields et al. (1994), "even if investors had knowledge of the declining value of junk bonds and real estate during this period, they would not have precise knowledge of the degree of any life insurer's holdings except from the previous year's statements." Also, 1990 data probably reflect changes that managers made in response to the First Executive events. Thus, a relationship between stock-price reactions and 1990 data is less reliable.

Last, the authors include a test of the effect of diversification on stock-price reactions. Fields et al. (1994) test diversification using the ratio of life insurance policy premiums to total revenues for each life insurer. They extend the Fields et al. (1994) test by computing the ratio of premiums written by the life insurance companies of a given holding company to total premiums written by all subsidiaries, including property and liability premiums. This variable allows us to determine whether firms writing mostly life, health, and annuity business were more negatively affected than more diversified insurers.

POTENTIAL INTERFIRM ANNOUNCEMENT EFFECTS

In the banking literature, Aharony and Swary (1983) use the term "contagion effect" to refer to a loss of confidence in the industry subsequent to a large bank failure. A loss of confidence can lead to bank runs, for example, as modeled by Diamond and Dybvig (1983). In their model, a bank run occurs when depositors panic and everyone rushes to withdraw money before the bank exhausts its assets. Aharony and Swary (1983) report that failures related to unique aspects of a bank's management, for example, fraud and internal irregularities, do not elicit an industry-wide stock-price reaction. When a failure stems from difficulties common to a group of banks, for example, foreign-exchange losses, the stock prices of other firms in the industry decline. However, Aharony and Swary (1983) attribute the stock-price reaction to more broadly applicable information generated by the failure (in this case, about the expected cash flows from foreign-exchange trading) rather than to contagion. Subsequent studies of bank failures and loan losses reach similar conclusions.[3] As Lang and Stulz (1992) observe, an information effect has no social costs because the stock-price reaction reflects a correct valuation conditional on the new information.

Diamond and Dybvig (1983) observe that the liquidity service provided by banks—the ability of depositors to withdraw assets rapidly—is what makes them susceptible to runs. Life insurance assets are not subject to withdrawal to the same degree that bank assets are. However, there clearly are opportunities for individual policyholder withdrawal, for example, through policy loans, lapses, and an Internal Revenue Code Sec. 1035 exchange of annuities.[4] Also, life insurers during the 1980s and early 1990s sold institutional investors a large volume of GICs, which were relatively short term and often allowed holders to withdraw assets before expiration. Kopcke (1992) argues that increasing life-insurance firm sales of GICs and other investment securities, by facilitating rapid withdrawals, reduces the future capacity of the firms to bear risk. In addition to withdrawals, reduced sales of insurance products are another potential component of a run on industry assets.

[3] Karafiath and Glascock (1989) and Peavy and Hempel (1988) conclude that the price reactions of bank stocks to the Penn Square failure are rational effects of news about regulatory policies. Smirlock and Kaufold (1987) report that bank stock-price reactions to the Mexican debt moratorium depend on exposures to Mexican loan losses. Karafiath, Mynatt, and Smith (1991) and Musumeci and Sinkey (1990) reach analogous conclusions about the Brazilian default announcement. Docking, Hirschey, and Jones (1997) analyze a comprehensive sample of loan-loss reserve disclosures and find support for an information hypothesis.

[4] DeAngelo, DeAngelo, and Gilson (1994) characterize the policyholder response to the First Executive announcements of early 1990 as a "bank run." Their analysis focuses on the consequences for First Executive itself, not the industry as a whole.

Importantly, the life insurance industry lacks government deposit insurance, which Diamond and Dybvig (1983) identify as the key to the prevention of runs. The absence of deposit insurance suggests that there is more potential for a large failure to trigger contagious runs in the life insurance business than in banking. Thus, the reactions of life insurance stock prices to the First Executive failure can reflect a contagion effect in the sense of Aharony and Swary (1983). If investors perceive an increased probability of a run, they bid down the prices of life insurance stocks to reflect the expected effect of the run on the present values of future cash flows. The authors refer to this as the contagion hypothesis.[5]

A large failure can also convey information about the management practices, market conditions, or asset values that led to the failure. If so, the stock prices of other insurance firms should react to the information to the degree that the firms share the practices, market exposure, or asset quality of the failed insurer. First Executive Corporation suffered heavy losses on the junk-bond investments of its life insurance subsidiaries. If investors learned new information about the quality or potential effects of junk-bond investments from First Executive's experience, then other life insurance firms should sustain negative stock-price reactions to the extent that they invest in junk bonds. The authors refer to this as the *information hypothesis*.

Fenn and Cole (1994) propose a *policyholder response hypothesis* to explain the stock-price reaction to announcements of insurer asset writedowns. This hypothesis predicts that the announcement conveys no new information about the firm's assets or management to the stock market. However, investors expect insurance customers to respond negatively to the announcement and therefore reassess the market value of insurance stocks accordingly.

The policyholder response hypothesis differs from the contagion hypothesis in that it predicts that insurance customers will respond in proportion to insurers' holdings of the same asset type that caused problems for the distressed insurer. Thus, the stock-price reaction to First Executive's announcement of a charge against earnings for junk-bond losses should be more negative for insurance firms in which junk bonds are a larger fraction of admitted assets.

Fenn and Cole (1994) base the policyholder response hypothesis on the potential actions of institutional investors. Accordingly, they use an institutional product, guaranteed investment contracts (GICs), to distinguish the policyholder response hypothesis. Specifically, they regress the charge-announcement abnormal return on the interaction of junk-bond holdings with GIC liabilities.

The authors propose a new interpretation of the policyholder response hypothesis that allows for separate responses by institutional and retail customers. Institutional investors are potentially more aware of insurance industry developments. They also arguably have more flexibility because of the previously mentioned ease of withdrawing GICs at the time of the First Executive crisis. However, institutional customers are not the only ones that can act quickly. Retail policyholders can rapidly surren-

[5] Angbazo and Narayanan (1996) report that Hurricane Andrew and related regulatory changes reduced property-liability insurer stock prices irrespective of claims exposure in affected states. The authors conclude that losses from the hurricane had contagion effects.

der annuities and life insurance policies and take out policy loans. DeAngelo, DeAngelo, and Gilson (1994) report massive increases in surrenders in all three categories at First Executive in early 1990. These authors also cite descriptions of the lobby of First Executive's Los Angeles office filling with senior citizens after every wave of negative news coverage. Thus, there is evidence in the literature, albeit partially anecdotal, that retail customers respond to news about the condition of specific life insurance companies. [Also see DeAngelo, DeAngelo, and Gilson (1996) for evidence of surrender increases in response to news coverage of First Capital Life.]

The failure of a large life insurance firm can increase the regulatory scrutiny of the remaining firms in the industry. Insurers' costs increase when they must respond to more frequent inquiries from regulators or if increased regulation substitutes inefficient operating practices for efficient ones. Large firms and those that are less financially sound are more likely to draw regulatory attention and are thus expected to have a more negative stock-price reaction. (See Stigler, 1971, and Watts and Zimmerman, 1986.) The authors refer to this as the regulatory cost hypothesis.

Lang and Stulz (1992) argue that the potential interfirm effects of financial distress include competitive effects. Competitive effects occur when other firms in the industry gain because of the removal or weakening of a competitor. Empirically, Lang and Stulz (1992) find that competitive effects occur only in highly concentrated industries. The life insurance industry is concentrated (Cummins, Denenberg, and Scheel, 1972). However, if there were gains to other life insurers from the elimination of a competitor, they would be offset by increased mandatory payments to state insurance guaranty funds and possibly by pressure to take over a portion of the failed insurer's business without full compensation. Consequently, the authors do not expect net competitive effects from First Executive financial distress events.

SAMPLE SELECTION AND DATA

To find the initial sample, the authors searched the Center for Research in Security Prices (CRSP), Standard & Poor's *Compustat*, and *Compact D/SEC* files for SIC codes identifying the life and health insurance industry. The authors added seven firms that the SIC code search did not reveal but that appear on Fenn and Cole's (1994) list. Using *Moody's Bank and Finance Manual*, the authors verified that the stocks were those of life insurers, life insurance holding companies, or multiline holding companies in which life insurance assets are approximately equal to or greater than property-liability and other assets. Only firms with at least 300 daily returns (of 379 possible) on the CRSP files from January 1, 1989, through June 30, 1990, entered the sample. The preceding criteria produced a sample of 78 stocks of 76 life insurance firms, excluding First Executive.[6] Table 1 lists the firms in the final sample.

The authors obtained data on several firm characteristics, described below, that potentially affected the stock-price reaction to the First Executive announcements. For

[6] Equitable of Iowa and Provident Life and Accident Insurance have two classes of traded stock each. The authors use the return on a value-weighted portfolio of the two classes in all tests. They eliminate Investors Heritage Life Insurance Company of Kentucky, United Security Financial Corporation, and Universal Holding Corporation because of data problems, details of which are available on request.

holding companies with more than one life insurance subsidiary, the authors computed a weighted average of each characteristic. The weight for each subsidiary was its admitted assets as a fraction of the total admitted assets of all life subsidiaries.

TABLE 1
Final Sample of 76 Publicly Traded Life Insurance Firms

ACADEMY INSURANCE GROUP INC	KEMPER CORP
ACAP CORP	KENTUCKY CENTRAL LIFE INS CO
AEGON N V	LAURENTIAN CAPITAL CORP
AETNA LIFE & CASUALTY CO	LIBERTY CORP SC
ALFA CORP	LINCOLN NATIONAL CORP IN
AMERICAN BANKERS INS GROUP INC	M C M CORP
AMERICAN FAMILY CORP	MANHATTAN NATIONAL CORP
AMERICAN GENERAL CORP	MONARCH CAPITAL CORP
AMERICAN HERITAGE LIFE INVT	N W N L COMPANIES INC
AMERICAN NATIONAL INS CO	NATIONAL SECURITY INS CO
AMVESTORS FINANCIAL CORP	NATIONAL WESTERN LIFE INS CO
AON CORP	OLD REPUBLIC INTL CORP
ATLANTIC AMERICAN CORP	PENN TREATY AMERICAN CORP
CAPITAL HOLDING CORP	PIONEER FINANCIAL SVCS INC
CENTRAL RESERVE LIFE CORP	PRESIDENTIAL LIFE CORP
C I G N A CORP	PROFESSIONAL INVSTRS IN GP INC
CITIZENS INC	PROGRESSIVE CORP OH
COLONIAL LIFE & ACC INS CO	PROTECTIVE LIFE CORP
CONSECO INC	PROVIDENT LIFE & ACC INS CO AMER
CONTINENTAL GENERAL CORP	RELIABLE LIFE INSURANCE CO
CORPORATE INVESTMENT CO	RELIANCE GROUP HOLDINGS INC
COTTON STATES LIFE & HEALTH INS	ROOSEVELT NATIONAL INVT CO
DIXIE NATIONAL CORP	SEIBELS BRUCE GROUP INC
DURHAM CORP	S N L FINANCIAL CORP
EMPIRE STATE LIFE INS CO	SOUTHERN EDUCATORS LIFE INS CO
EQUITABLE OF IOWA COMPANIES	SOUTHERN SECURITY LIFE INS CO
FINANCIAL BENEFIT GROUP INC	STATESMAN GROUP INC
FIRST CAPITAL HLDGS CORP	TORCHMARK CORP
FIRST CENTENNIAL CORP	TRANSAMERICA CORP
HOME BENEFICIAL CORP	TRAVELERS CORP
I C H CORP	UNITED COMPANIES FINANCIAL CORP
INDEPENDENT INSURANCE GRP INC	UNITED HOME LIFE INS CO
INTEGON CORP NEW	UNITED INSURANCE COS INC
INTERCONTINENTAL LIFE CORP	U N U M CORP
INVESTORS TRUST INC	U S L I C O CORP
JEFFERSON PILOT CORP	USLIFE CORP
JOHN ADAMS LIFE CORP	WASHINGTON NATIONAL CORP
KANSAS CITY LIFE INS CO	WESTBRIDGE CAPITAL CORP

Table 2 reports descriptive statistics of several firm characteristics. The mean admitted assets of the sample firms is $4.1 billion, while the median is $987 million, indicating a skewed distribution of assets.

TABLE 2
Descriptive Statistics of Admitted Assets, Investment Portfolio Composition, Best's Rating, Market Value of Equity, Surplus Rate, GICs Outstanding, Life and Annuity Reserves, and Life Premiums for 76 Stock Life Insurance Firms at the End of 1989

Characteristic	Mean	Standard Deviation	Minimum	First Quartile	Median	Third Quartile	Maximum
Admitted assets (1,000s of $)	4,084,761	9,318,034	8944	82,323	987,155	5,128,583	61,896,823
Fraction of admitted assets invested in bonds	0.553	0.192	0.120	0.405	0.555	0.706	0.930
Fraction of bond investments rated as investment grade	0.938	0.067	0.680	0.915	0.962	0.980	1.000
Junk bonds (fraction of admitted assets in below-investment-grade bonds)	0.035	0.046	0.000	0.008	0.016	0.042	0.256
Real estate (fraction of admitted assets; includes mortgages)	0.136	0.129	0.000	0.031	0.083	0.233	0.471
A.M. Best rating below A– = 1, A– or above = 0	0.316	0.468	0.000	0.000	0.000	1.000	1.000
Surplus rate (fraction of admitted assets)	0.154	0.134	–0.058	0.078	0.119	0.186	0.933
Market value of common equity (1,000s of $)	1,137,029	1,957,936	2,078,750	31,752	230,148	1,187,031	8,738,360
Guaranteed investment contracts (GICs; fraction of admitted assets)	0.030	0.093	0.000	0.000	0.000	0.000	0.499
Life and annuity reserves (fraction of admitted assets)	0.502	0.276	0.003	0.258	0.541	0.718	1.000
Net life premiums as a fraction of total life and property-liability net premiums	0.842	0.283	0.001	0.791	1.000	1.000	1.000

From *Best's Insurance Reports* the authors collected the percentage of each firm's investment portfolio held in junk (below investment grade) bonds and real estate (including mortgages). Since the First Executive experience potentially revealed new information about losses on junk-bond investments, the authors expected the stock-price reaction to First Executive announcements to be negatively related to the fraction of junk bonds in the portfolio. Table 2 reports that the firms in the sample have a mean of 55.3 percent of their admitted assets invested in bonds, of which a mean 93.8 percent are investment-grade bonds. A mean of 3.5 percent (median 1.6 percent) of admitted assets are invested in below-investment-grade bonds.

Around the time of the First Executive failure, other life insurance companies encountered difficulty because of real estate investments. The commercial real estate market had already begun to deteriorate significantly in late 1989. As it turned out, real estate was a more troublesome asset than junk bonds. DeAngelo, DeAngelo, and Gilson (1994) report that over 1989 and 1990, a junk-bond investment performance index declined by 9.2 percent, while real estate and mortgage indices lost 36.6 percent and 41.6 percent, respectively. After bonds, real estate investments make up the next largest fraction of life insurer assets. A mean of 13.6 percent of the admitted assets of the sample firms was invested in real estate equity or mortgages. The stock market reaction to First Executive events will be related to real estate investments if asset-quality problems in junk-bond portfolios trigger greater investor or policyholder concern about real estate assets.

The authors also took the A.M. Best financial strength rating from *Best's Insurance Reports*. The rating summarizes the overall solvency of the insurer and can be interpreted as a certification of other publicly available data (Singh and Power, 1992). The market values of firms that have a lower financial-strength rating should be more sensitive to new information revealed by the events in the study. Accordingly, the authors tested for a negative relationship between the stock-price reaction and the financial strength of the insurer as reported by A.M. Best. They used a dummy variable equal to one if the Best rating was less than A– and equal to zero if the rating was A–, A, or A+. Table 2 reports that 31.6 percent of the sample firms were rated below A– by Best. The authors also tested surplus as a fraction of assets as another measure of solvency. The sample firms have a mean surplus of 15.4 percent, and a median surplus of 11.9 percent, of admitted assets.

As discussed above, larger firms can incur greater regulatory costs as a result of a highly visible failure in the industry. Under this version of the regulatory cost hypothesis, the stock-price reaction should be negatively related to firm size. The authors measured size by the market value of common equity, computed as the closing price per share multiplied by the number of shares outstanding on the first trading day of July 1989. The price and number of shares came from the CRSP database. The mean market value of equity in the sample is approximately $1.1 billion.

The authors further refined the test of the policyholder response hypothesis by testing the relationship between the stock-price reaction and life insurance and annuity reserves as a fraction of admitted assets. They reasoned that insurers that have higher fractions of life and annuity reserves to admitted assets are more vulnerable to rapid withdrawals and surplus drain. For example, DeAngelo, DeAngelo, and Gilson (1994)

report that cash withdrawal demands by FE life and annuity policyholders totaled almost $3 billion in the first two quarters of 1990. The sample firms have a mean of 50.2 percent of admitted assets in life and annuity reserves.

The authors also tested the relationship between the stock-price reaction and the amount of GICs outstanding (from *Best's Insurance Reports*) as a fraction of admitted assets. Fenn and Cole (1994) use GICs to test the policyholder response hypothesis. Their reasoning is that GICs offer holders more rapid withdrawals than other insurance products.[7] Most of the sample firms had no GICs outstanding in 1989, but the presence of some large GIC issuers in the sample produces a mean of 3.0 percent of admitted assets in GICs outstanding.[8]

Finally, from *Best's Insurance Reports* the authors collected net premiums for all lines of insurance written by the companies in their sample, including property and liability. They included the ratio of net life insurance premiums as a fraction of total life and property-liability net premiums as a diversification variable. They tested the relationship between the market reaction and the diversification variable to determine whether firms operating predominantly in the life insurance industry are more negatively affected. The mean of net life insurance premiums as a fraction of total life and property-liability net premiums is 84.2 percent.

EVENT PERIODS EXAMINED

Table 3 lists the event periods that the authors studied. The sources of the event dates are the *Wall Street Journal Index* and the *Wall Street Journal*. Each event period has a name and a date range. Each period is five trading days, from two days before to two days after the *Wall Street Journal* report date. The use of two days before and after the report allowed for the possibility that the news reached the market before the newspaper article appeared or that market reaction to the news was delayed.

The first event period, *Crash*, is centered on the stock market mini-crash of October 13, 1989. *Crash* is not specific to the financial distress of First Executive, but it occurs during the authors' sample period and the authors believe it is important to account for it separately from the normal return-generating process. Market crashes are often viewed as an interruption of the normal return-generating process, so the usual market model is likely be an inadequate representation of the mean return of a nonrandom sample around the crash.

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[7] DeAngelo, DeAngelo, and Gilson (1994) suggest that bankruptcy filings in 1983 and 1984 by Baldwin-United and Charter Company, large issuers of single premium deferred annuities, caused FE to recognize "run" problems with surrenderable products and to diversify into single premium immediate annuities and GICs, neither one of which is typically surrenderable. Personal discussions with industry executives by the authors also cause them to question Fenn and Cole's (1994) assumption that GICs offer holders rapid withdrawal opportunities relative to other insurance products.

[8] A reviewer pointed out that if GIC issuers are exclusively large firms, then it may be impossible to distinguish the effects of GICs and firm size. Additional details, not reported in a table, mitigate this concern. Of the 11 sample firms that report GIC liabilities, 7 are among the largest 11 firms in the sample. The others are the 26th, 28th, 33rd, and 57th largest. Thus, while GIC issuers tend to be relatively large, they are not uniformly so.

TABLE 3
Event Dates

Variable Name	Dates	Number of Trading Days	Description
Crash	10/11–10/17/89	5	Stock market mini-crash occurs on 10/13.
Investigation	12/21–12/28/89	5	California Department of Insurance announces an investigation of First Executive junk-bond transactions.
Charge	1/19–1/25/90	5	First Executive announces a charge for junk-bond portfolio losses.
Examiners	3/1–3/7/90	5	State installs full-time examiners at Executive Life of California.
Surrenders	3/30–4/5/90	5	First Executive announces a loss in fiscal fourth quarter and an unusual volume of policy surrenders in early 1990.

The four main events are designated *Investigation, Charge, Examiners*, and *Surrenders*. As detailed below, *Charge* and *Surrenders* are key announcements of asset-quality problems at First Executive. *Investigation* and *Examiners* are the two salient announcements in this period regarding the regulatory treatment of First Executive. It is important to investigate these dates because regulators' handling of the crisis, not just the direct solvency implications of junk bond losses and policy surrenders, potentially changed the market perception of other insurance firms' values.

The event period labeled *Investigation* covers the announcement that the California Department of Insurance would investigate a planned transfer of junk bonds held by First Executive. First Executive had arranged to transfer some of its bond investments into an asset-backed-security issuance vehicle, possibly in such a way as to conceal future portfolio losses. The regulatory cost hypothesis predicts a negative stock-price reaction on this date, and a more negative reaction as junk-bond holdings increase.

On January 22, 1990, First Executive announced that it would post a $515 million special charge against earnings for losses on its junk-bond investments. The firm also stated that it expected to report a substantial net loss for 1989. The *Wall Street Journal* reported the next day that First Executive stock lost 42 percent of its value on the announcement day alone. The five-day period centered on January 22 is labeled *Charge.* The contagion, information, and policyholder response hypotheses predict a negative abnormal return on this date. The information and policyholder response hypotheses predict a more negative reaction as junk-bond holdings increase. The authors' interpretation of the policyholder response hypothesis further predicts a more negative reaction, commensurate with life and annuity reserves.

The event period *Examiners* covers the date on which the California Department of Insurance announced the installation of full-time examiners at Executive Life. The

regulatory cost hypothesis predicts a more negative stock-price reaction to this event, the smaller the firm, and the lower the rating and surplus rate. The event period *Surrenders* contains the announcement by First Executive of its actual 1989 fourth-quarter loss and of policy surrenders amounting to $559 million in January and February of 1990. The information and policyholder response hypotheses predict a negative stock-price reaction for the junk-bond-weighted portfolio on this date.

STATISTICAL METHODS

The authors tested the average stock-price reaction to each of the events using the multivariate regression model (MVRM) suggested by Schipper and Thompson (1983). The MVRM controls for cross-sectional heteroscedasticity and contemporaneous cross-correlation of the residuals. The MVRM approach extends the usual market model to a conditional return generating process by adding a dummy variable corresponding to each event period. The MVRM method appears in numerous other studies with date- and industry-clustered samples, for example, Smith, Bradley, and Jarrell (1986); Cornett, Davidson, and Rangan (1996); and Brook, Hendershott, and Lee (1998). Karafiath (1988) provides a basic introduction to the method.

Since the event dates are identical for all the firms in this study, the authors estimated the MVRM by forming the stocks into a portfolio and estimating a single regression equation on the portfolio returns (Thompson, 1985). To increase the efficiency of the parameter estimates, the authors used portfolio weights based on the estimated full covariance matrix of residuals, $\boldsymbol{S}$. The residuals used to compute $\boldsymbol{S}$ come from a set of first-pass OLS regressions for each stock. The vector of portfolio weights is $\boldsymbol{P} = \left(1'\boldsymbol{S}^{-1}1\right)^{-1}\boldsymbol{S}^{-1}1$.

The authors estimated the following regression:

$$R_{pt} = \alpha_p + \beta_p R_{mt} + \sum_{k=1}^{K} \gamma_{pk} D_{kt} + \varepsilon_{pt}, \tag{1}$$

where

R_{pt} = return on portfolio p on day t;

R_{mt} = return on the CRSP value-weighted NYSE-AMEX-Nasdaq index on day t;

α_p = intercept coefficient for portfolio p;

β_p = risk coefficient for portfolio p;

γ_{pk} = effect of event k on portfolio p, k =1, 2, ...,K;

D_{kt} = dummy variable, equal to one during event period k and zero otherwise;

ε_{pt} = random disturbance that is assumed to be normal and independent of the return on the market and the event-period dummy variables.

To test the effects of firm characteristics on the stock-price reaction to the events, the authors used a modified version of the portfolio-weighting procedure suggested by

Sefcik and Thompson (1986). In the Sefcik-Thompson (1986) procedure, a different set of portfolio weights corresponding to each characteristic is used to re-estimate Equation (1). The estimates of the γ_{pk} then reflect the effect of the pth characteristic on the stock-price reaction to the kth event.

Unlike the MVRM method used for the first set of regressions in the study, the Sefcik-Thompson procedure does not account for cross-sectional heteroscedasticity and cross-correlation of the residuals. Chandra and Balachandran (1992) propose an extension of the Sefcik-Thompson procedure that they call the Portfolio Constant Correlation Model (PCCM). Chandra and Balachandran (1992) report that the PCCM test is well specified and more powerful than the Sefcik-Thompson test. The cross-sectional tests of stock-price reactions in this study incorporate the PCCM procedure.

To calculate the portfolio weights for the PCCM tests of firm characteristics, let

$$\boldsymbol{F} = \left[1 \;\; \boldsymbol{X}_2 \cdots \boldsymbol{X}_p\right], \tag{2}$$

where $\boldsymbol{X}_p$ is an $N \times 1$ vector of the pth firm characteristic (N is the number of stocks in the portfolio). The set of portfolio weights corresponding to the pth characteristic is the pth row of the $P \times N$ matrix

$$\boldsymbol{W} = \left(\boldsymbol{F}'(\sigma \boldsymbol{C} \sigma)^{-1} \boldsymbol{F}\right)^{-1} \boldsymbol{F}'(\sigma \boldsymbol{C} \sigma)^{-1}, \tag{3}$$

where σ is a diagonal matrix, the nonzero elements of which are the residual standard deviations of the $\boldsymbol{N}$ stocks, and $\boldsymbol{C}$ is the constant correlation matrix of the raw returns of the stocks. (The diagonal elements of $\boldsymbol{C}$ are equal to 1, and the off-diagonal elements are all equal to the same estimated average pairwise correlation between any two of the $\boldsymbol{N}$ stocks.)

The authors checked the sensitivity of their results to confounding events in a manner similar to Fenn and Cole (1994). They examined the individual-firm Studentized event parameter estimates from the first-pass OLS regressions. For every firm with a Studentized parameter estimate greater than 2 in absolute value, the authors checked the *Wall Street Journal Index* for potentially confounding news reports. Three firms had such a report for one event each, and one firm had a potentially confounding report for each of two event dates. Re-running the MVRM and PCCM tests with these firms omitted did not change the signs and significance of the parameter estimates reported below and thus did not alter the authors' conclusions.

RESULTS

Stock-Price Reactions

Table 4 presents the regression results for the portfolio stock-price reactions to the events. The corresponding results for First Executive are included for comparison. The coefficient of the Crash variable is significantly negative, for the sample of 76 life insurance firms, at the 1 percent level. Thus, the ordinary market model parameters appear not to fully capture the change in mean return that occurred around the October 1989 mini-crash.

TABLE 4
MVRM Regression of Daily Return on Market Index and Indicator Variables for Common Stocks of 76 Life Insurance Firms Excluding First Executive and for First Executive (*t*-statistics in Parentheses)

Variable	Coefficient for Sample of 76	Coefficient for First Executive
Intercept	0.00036	–0.00214
	(3.30**)	(–0.84)
Market Index	0.35387	1.87415
	(23.13**)	(5.20**)
Crash	–0.00317	–0.00363
	(–3.44**)	(–0.17)
Investigation	0.00050	0.02619
	(0.55)	(1.23)
Charge	–0.00205	–0.07304
	(–2.24*)	(–3.40**)
Examiners	–0.00085	–0.01891
	(–0.94)	(–0.89)
Surrenders	–0.00046	–0.02488
	(–0.51)	(–1.17)
F	104.64**	8.23**
Adjusted R^2	62.2%	10.3%

* Statistically significant at the 5 percent level, two-sided tests
** Statistically significant at the 1 percent level, two-sided tests

There is no statistically significant stock-price reaction to the *Investigation* event for either the sample or First Executive itself. The investigation of First Executive's transfer of junk bonds may have been anticipated or too specific to the transaction or to the type of investment to have information content for life insurance firms generally. In the next section, however, the authors provide evidence on the relationship between the stock-price reaction to this announcement and the extent of junk-bond holdings.

One First Executive announcement variable, *Charge*, is significantly negatively related to the portfolio and First Executive returns. This supports the idea that reports about junk-bond investment losses at First Executive conveyed new information about the value of life insurance industry cash flows. The negative coefficient for the portfolio is consistent with the contagion, information, and policyholder response hypotheses. The result also is consistent with Fenn and Cole (1994).

There is no significant relationship between the *Examiners* or *Surrenders* announcement variables and the portfolio or First Executive return. Thus, neither the announcements of further regulatory activity nor details of earnings and policy surrenders had any additional information content for First Executive or the industry on average.

Cross-Sectional Tests

Table 5 reports the PCCM tests of the effects of firm characteristics on stock-price reactions. The PCCM approach incorporates correlations among all the explanatory firm characteristics considered in all regressions. Therefore, investigating alternative specifications of one variable requires a new complete set of regressions. Table 5 contains three sets. Panel A presents the set using all eight firm characteristics. Panel B presents an alternative specification in which the junk-bonds variable is dropped and the characteristics related to institutional investor and individual policyholder response are replaced by their interactions with the junk-bonds variable. Panel C presents a reduced version of the regression set from Panel A, dropping the size, GICs, and life-premiums characteristics.

All panels of Table 5 report that the surplus-rate characteristic portfolio experiences a positive reaction (0.57 percent in Panel A) to the Investigation event. The reaction is statistically significant at the 1 percent level. The results indicate that life insurers with greater ability to withstand unexpected losses have less stockholder wealth loss or greater gain around the event, which is consistent with the regulatory cost hypothesis. Also, the junk-bond characteristic portfolios in Panels A and C experience a negative reaction that would be marginally significant at the 10 percent level, consistent with the information hypothesis and potentially with the policyholder response hypothesis.

Panels A and C of Table 5 also report a positive reaction to the Investigation event for the life and annuity reserves portfolio (0.69 percent) that is significant at the 5 percent level. This result suggests that, *ex ante*, market participants did not expect retail policyholders to respond negatively; to the contrary, retail policyholders apparently were perceived as providing a measure of stability. Although there is no significant association of the stock-price reaction with GIC liabilities and only a marginally significant association with junk bonds, any negative response would be expected to come from institutional customers.

The junk-bond and life-and-annuity-reserves portfolios in Panels A and C react negatively to the *Charge* event. Both results are consistent with the information and policyholder response hypotheses and contradict the contagion hypothesis. The junk-bond portfolio reaction of –7.15 percent in Panel A (–8.64 percent in Panel C) is statistically significant at the 5 percent level (1 percent level in Panel C). The life-and-annuity-reserves portfolio reaction of –1.02 percent in Panel A (–0.79 percent in Panel C) is statistically significant at the 1 percent level (5 percent level in Panel C). Panel B reports that the portfolio weighted by the interaction between GIC liabilities and junk-bond investments does not experience a negative reaction to the announcement. In contrast, the reserves-junk bonds interaction portfolio experiences a statistically significant reaction of –13.65 percent.

The results for the *Charge* event suggest that, unlike at the time of the *Investigation*, market participants expected that retail customers would respond to the *Charge* announcement and withdraw business from insurers with junk bond holdings.[9] While

[9] The authors thank an anonymous reviewer for pointing out the importance of the change between the two events.

TABLE 5

Portfolio Cross-Correlation Model Tests for the Effects of Firm Characteristics on Life Insurance Stock-Price Reactions to First Executive and the Life and Annuity Reserves Portfolio Events in 1989–1990

Coefficient estimates of event dummy variables γ_{pk} in Equation (1) run for each of N portfolios ($p = 2, 3, \ldots, N$) where $N = 8$ in Panel A, $N = 7$ in Panel B, and $N = 5$ in Panel C:

$$R_{pt} = \alpha_p + \beta_p R_{mt} + \sum_{k=1}^{K} \gamma_{pk} D_{kt} + \varepsilon_{pt} ,$$

where γ_{pk} for each portfolio p measures the effect of the corresponding characteristic on the five-day stock-price reaction to event k; t statistics are in parentheses.

Panel A

	Firm Characteristic Portfolio							
Intercept, Market Index, or Event Dummy Variable	**Junk Bonds**	**Real Estate**	**A.M. Best Rating Below A–**	**Log of Size Market Value of Equity**	**Surplus Rate**	**GICs**	**Life and Annuity Reserves**	**Life Premiums ÷ Total Premiums**
Intercept	–0.00179	–0.00077	0.00005	0.00013	0.00006	–0.00107	0.00044	0.00014
	(–0.49)	(–0.80)	(0.13)	(1.66*)	(0.22)	(–0.92)	(1.06)	(0.34)
Market	1.61613	–0.72857	0.15317	0.15946	0.05590	0.71061	0.10565	0.01556
Index	(3.11**)	(–5.34**)	(2.98**)	(14.90**)	(1.52)	(4.28**)	(1.80)	(0.26)
Crash	–0.05189	0.00232	0.00720	0.00084	0.00053	0.00828	–0.00393	0.00098
	(–1.66)	(0.28)	(2.33*)	(1.30)	(0.24)	(0.83)	(–1.11)	(0.27)
Investigation	–0.04917	–0.00902	–0.00025	0.00047	0.00574	0.00518	0.00691	0.00608
	(–1.60)	(–1.11)	(–0.08)	(0.74)	(2.64**)	(0.53)	(1.98*)	(1.72)
Charge	–0.07151	–0.01193	–0.00356	–0.00045	–0.00154	–0.00384	–0.01024	0.00549
	(–2.31*)	(–1.46)	(–1.16)	(–0.70)	(–0.70)	(–0.39)	(–2.92**)	(1.55)
Examiners	0.04380	0.00289	–0.00008	–0.00050	–0.00052	0.00972	0.00556	–0.00134
	(1.42)	(0.36)	(–0.03)	(–0.79)	(–0.24)	(0.99)	(1.60)	(–0.39)
Surrenders	–0.05488	–0.00373	–0.00335	–0.00015	–0.00321	0.00154	0.00352	–0.00123
	(–1.79)	(–0.46)	(–1.10)	(–0.23)	(–1.48)	(0.16)	(1.01)	(–0.35)
F	4.96**	5.51**	2.67*	39.0**	2.17*	3.54**	3.99**	0.95
Adjusted R^2	5.9%	6.7%	2.6%	37.6%	1.8%	3.9%	4.5%	<0

* Statistically significant at the 5 percent level, two-sided tests

** Statistically significant at the 1 percent level, two-sided tests

TABLE 5
(Continued)

Panel B

	Firm Characteristic Portfolio						
Intercept, Market Index, or Event Dummy Variable	**Real Estate**	**A.M. Best Rating Below A–**	**Log of Size (Market Value of Equity)**	**Surplus Rate**	**GICs × Junk Bonds**	**Life and Annuity Reserves × Junk Bonds**	**Life Premiums ÷ Total Premiums**
Intercept	–0.00069	–0.00005	0.00009	0.00006	–0.03710	0.00134	0.00015
	(–0.75)	(–0.14)	(1.30)	(0.23)	(–1.04)	(0.29)	(0.37)
Market Index	–0.53205	0.19551	0.17056	0.03714	7.38102	2.51412	0.03387
	(–4.08**)	(3.98**)	(17.87**)	(1.03)	(1.46)	(3.78**)	(0.57)
Crash	0.00498	0.00817	0.00114	0.00091	0.07567	–0.06676	0.00130
	(0.63)	(2.76**)	(1.99*)	(0.42)	(0.25)	(–1.67)	(0.36)
Investigation	–0.00446	–0.00078	0.00017	0.00556	–0.07622	–0.01792	0.00645
	(–0.58)	(–0.27)	(0.30)	(2.60**)	(–0.26)	(–0.46)	(1.83)
Charge	–0.01508	–0.00282	–0.00011	–0.00077	0.04449	–0.13645	0.00526
	(–1.94)	(–0.96)	(–0.18)	(–0.36)	(0.15)	(–3.44**)	(1.48)
Examiners	0.00622	–0.00005	–0.00056	–0.00098	0.12724	0.08322	–0.00107
	(0.81)	(–0.02)	(–0.99)	(–0.46)	(0.43)	(2.11*)	(–0.30)
Surrenders	–0.00408	–0.00457	–0.00056	–0.00294	0.34583	–0.04390	–0.00140
	(–0.53)	(–1.57)	(–0.99)	(–1.38)	(1.16)	(–1.12)	(–0.40)
F	3.69**	4.18**	55.15**	1.79	0.62	7.06**	1.02
Adjusted R^2	4.1%	4.8%	46.2%	1.2%	<0	8.8%	0.0%

* Statistically significant at the 5 percent level, two-sided tests
** Statistically significant at the 1 percent level, two-sided tests

TABLE 5
(Continued)

Panel C

Intercept, Market Index, or Event Dummy Variable	Firm Characteristic Portfolio				
	Junk Bonds	**Real Estate**	**A.M. Best Rating Below A–**	**Surplus Rate**	**Life and Annuity Reserves**
Intercept	–0.00089 (–0.24)	–0.00093 (–1.05)	–0.00037 (–1.34)	0.00017 (0.66)	0.00025 (0.65)
Market Index	3.74815 (7.23**)	–0.15923 (–1.27)	–0.35528 (–9.12**)	0.21129 (5.85**)	–0.39034 (–7.15**)
Crash	–0.04038 (–1.29)	0.00714 (0.94)	0.00458 (1.95)	0.00120 (0.55)	–0.00692 (–2.10*)
Investigation	–0.05081 (–1.65)	–0.00558 (–0.75)	–0.00167 (–0.72)	0.00535 (2.50*)	0.00596 (1.84)
Charge	–0.08641 (–2.79**)	–0.01370 (–1.83)	–0.00212 (–0.91)	–0.00273 (–1.27)	–0.00785 (–2.41*)
Examiners	0.04329 (1.41)	0.00557 (0.75)	0.00165 (0.71)	–0.00089 (–0.41)	0.00561 (1.74)
Surrenders	–0.05423 (–1.77)	–0.00352 (–0.47)	–0.00287 (–1.24)	–0.000319 (–1.49)	0.00356 (1.10)
F	13.50**	1.22	16.67**	8.26**	9.92**
Adjusted R^2	16.6%	0.3%	19.9%	10.3%	13.8%

* Statistically significant at the 5 percent level, two-sided tests
** Statistically significant at the 1 percent level, two-sided tests

the *Charge* announcement highlighted the potential difficulty created by junk bond holdings, nothing in the announcement itself should have reversed the direction of the expected retail policyholder response. However, DeAngelo, DeAngelo, and Gilson (1994) contend that extensive, repetitive adverse media coverage, beginning as early as July 1989 and intensifying the *Investigation* and *Charge* dates, undercut policyholder confidence in FE's financial products. (See their Appendix A.) The reversal that Table 5 documents between the *Investigation* and *Charge* events implies that the negative coverage also undercut retail policyholder confidence in other life insurers.[10] Panel B reports that the characteristic portfolio based on the interaction between junk bonds and life and annuity reserves exhibits a stock-price reaction of –13.6 percent, which is significant at the 1 percent level. Thus, market participants did not expect a contagious, unsystematic run on life insurers, but expected retail policyholders to discriminate among insurers on the basis of junk-bond holdings.

Table 5, Panel B, reports that one portfolio experiences a statistically significant positive stock-price reaction to the *Examiners* event. The portfolio weighted by the interaction between life and annuity reserves and junk bonds exhibits a reaction of positive 8.3 percent, which is significant at the 5 percent level. DeAngelo, DeAngelo, and Gilson (1994) observe that in addition to the installation of full-time examiners, regulators simultaneously announced that they were hiring outside consultants to conduct a detailed review of policy surrenders. The announced review potentially signaled that regulators were initiating fresh efforts to reduce panic among individual policyholders. Such efforts could benefit other insurers with significant junk-bond holdings and individual policies potentially more than they would affect First Executive, which was already heavily damaged.

Table 5 reports no statistically significant reaction of the GIC or GIC-junk bond interaction characteristic portfolios to the *Charge* event. This differs from Fenn and Cole (1994). Further investigation, detailed in the Appendix, reveals that the difference is due to the authors' use of the PCCM method, which is less sensitive to outliers than ordinary cross-sectional regressions, which Fenn and Cole use. No portfolio experiences a significant negative reaction to the *Surrenders* announcement, although the junk-bond characteristic portfolios in Panels A and C experience negative reactions that would be significant at the 10 percent level. The announcement apparently conveyed little new information about policyholder responses to potential junk-bond losses.

The real estate and low A.M. Best rating portfolios do not react significantly to any of the events, although Panels B and C report negative reactions for the real estate portfolio that would be significant at the 10 percent level.[11] The lack of association between the stock-price reaction and real estate holdings or financial strength ratings is consistent with the argument that individual policyholders were expected to respond

[10] DeAngelo, DeAngelo, and Gilson (1994) analyze feature articles that discuss previously reported facts on FE as a measure of media interest. They report that 37.5 percent of feature articles appear within a month after the *Charge* event and argue that the articles and corresponding surrender data show that the "bank run" on FE closely followed that announcement.

[11] The authors tried substituting an ordinal measure of the A.M. Best rating for the dummy variable used in the reported tests. The Best rating variable remained far from significant.

to press coverage of junk bonds. DeAngelo, DeAngelo, and Gilson (1994) characterize the coverage as disproportionate, given that real estate investments were also a source of financial problems for insurers. If the average stock-price reactions of other life insurance firms to the First Executive events were driven by the expected responses of institutional holders of investment products, the authors would have expected the market reactions to be related to these gauges of potential financial distress.

Finally, the portfolio formed on life premiums as a fraction of total premiums does not experience statistically significant stock-price reactions. Thus, the results do not indicate that the predominantly life firms that diversify into property-liability insurance firms experience different stock-market reactions to the First Executive events than do less diversified firms.

CONCLUSION

This study reports an investigation of the effects of the First Executive failure on other life insurance firms using stock-market data. Industry-wide stock-price changes around First Executive announcements reflect the effects of the announcements on market estimates of future industry cash flows. The authors document statistically significant, negative stock-price reactions to the announcement of an accounting charge for junk-bond investment losses at First Executive.

The authors' results do not indicate that stock market participants expected the First Executive events to create a contagious "bank run" on the life insurers without regard to firm condition. Cross-sectional analysis finds the stock-price reaction to the California *Investigation* announcement to be positively related to firms' dependence on individual life insurance policies and annuities, quantified by life and annuity reserves. A month later, this relation is reversed for the *Charge* announcement of First Executive writeoffs for junk-bond losses. The *Charge* reaction is also significantly more negative for insurers with larger fractions of their portfolios invested in junk bonds. When the regression is specified with the interaction of junk bonds and life and annuity reserves, the relationship again is significantly negative. The results indicate that market participants' expectation of retail policyholder behavior reversed direction between the two events. DeAngelo, DeAngelo, and Gilson (1994) contend that repetitive news coverage of First Executive skewed perceptions of the firm's product quality. The authors' results are consistent with an extension of the argument to other life insurance firms with junk bonds in their portfolios.

The stock-price reactions to the events in this study are not significantly related to GIC liabilities or the interaction of GIC liabilities with junk bonds. The results support the argument that individual policyholders were more likely than institutional investors to respond by withdrawing assets from firms with junk-bond holdings. This conclusion is new in the literature and differs from Fenn and Cole (1994), who argue that institutional investors were expected to be the main source of customer response to the First Executive crisis.

Additionally, the stock-price reaction to the installation of full-time *Examiners* at First Executive's California unit is positively related to life and annuity reserves and to the interaction of life and annuity reserves with junk bonds. The authors conjecture that

regulators' simultaneous hiring of outside consultants to deal with the problem of policy surrenders outweighed any effect of increased regulatory cost implied by the announcement. Alternatively, the installation of examiners itself could have calmed retail policyholders by signifying that corrective action had begun. In either case, the interaction-term result provides further evidence that the expected response of individual policyholders was not random but conditioned on firms' junk-bond holdings.

This study ties together two strands of research on asset-quality problems at First Executive (FE): DeAngelo, DeAngelo, and Gilson's (1994) opinion that negative publicity about, and regulators' response to, FE's junk-bond portfolio losses was excessive, and Fenn and Cole's (1994) argument that other insurers' stock-price reactions reflect expected policyholder responses to the FE events. The *Investigation* and *Charge* events together support the conclusion that while neither stock-market participants' nor customers' responses were random or irrational, individual policyholders' responses placed disproportionate weight on the accelerating negative media coverage of junk bonds between the two events. Even then, stock-market investors apparently anticipated that individual policyholders would accurately distinguish insurers by junk-bond exposure.

The authors' results show that retail financial customers have the capacity, in the absence of anything equivalent to deposit insurance, to distinguish a risk factor and react correspondingly. This finding, in conjunction with previous research, has implications for regulatory policy. In the First Executive case, the politics of finance and the corresponding obsession with junk bonds were allowed to drive media coverage of the industry to the exclusion of other risk factors such as real estate (DeAngelo, DeAngelo, and Gilson, 1994). In the 1991 seizures of FE's California unit and of First Capital Holdings, DeAngelo, DeAngelo, and Gilson (1996) argue that a state insurance regulator even exacerbated the media's fixation with junk bonds. Thus, retail investor behavior was a response primarily to the media-dominating junk-bond risk. In a future crisis at a large financial enterprise, if regulators can adeptly "spin" accurate information about the condition of the industry and influence retail customers through the news media, they may be able to prevent a disproportionate withdrawal of business and attendant deadweight losses.

APPENDIX

In contrast to the results that Table 5, Panel B, reports, Fenn and Cole (1994) report an association between the *Charge* stock-price reaction and the GICs-junk bonds interaction that is significant at the 0.05 level. To gain insight into the difference in results, the authors replicate the tests in Fenn and Cole (1994, Equation 2 and Table 2), applying all of their methods of analysis to the present data. The replication entails a longer time series, a two-day announcement window instead of five days, the equally weighted NYSE index instead of a broader value-weighted index, different event dates (but with *Charge* in common), firm-by-firm multiple-regression event-study estimates instead of a weighted portfolio MVRM estimation, cross-sectional regression of event parameter estimates on explanatory variables instead of PCCM model estimation, and other details.

For comparison purposes, the authors discuss the replication in terms of percentage returns rather than the decimal format used in the body of the study. They find (but

do not report in a table) that the estimated coefficient of the interaction term, without the separate GIC term included, is –77.61 with a standard error of 34.6. Adding the GIC term to the regression changes the interaction coefficient to –102.44 with a standard error of 59.6. The results are not very different, in magnitude or significance level, from the Fenn-Cole estimated coefficient of –105.9 and standard error of 46.6 (–135.7 and 60.7 when the GIC term is present). However, the authors' regression diagnostics indicate that NWNL Companies and Presidential Life are influential outliers in this regression.[12] Removing the two outliers leads to a coefficient estimate of –7.22 with a standard error of 178.05 (197.52 and 1,427.46 in the presence of the GIC term). The authors conclude that the difference between the present results and Fenn and Cole (1994), as regards the GIC-junk bond interaction term, is because of their use of a cross-sectional testing method that is sensitive to outliers.

REFERENCES

Aharony, Joseph, and Itzhak Swary, 1983, Contagion Effects of Bank Failures: Evidence from Capital Markets, *Journal of Business*, 56(3): 305-322.

Angbazo, Lazarus A., and Ranga Narayanan, 1996, Catastrophic Shocks in the Property-Liability Insurance Industry: Evidence on Regulatory and Contagion Effects, *Journal of Risk and Insurance*, 63(4): 619-637.

Brook, Yaron, Robert Hendershott, and Darrell Lee, 1998, The Gains from Takeover Deregulation: Evidence From the End of Interstate Banking Restrictions, *Journal of Finance*, 53(6): 2185-2204.

Chandra, Ramesh, and Bala V. Balachandran, 1992, More Powerful Portfolio Approaches to Regressing Abnormal Returns on Firm-Specific Variables for Cross-Sectional Studies, *Journal of Finance*, 47(5): 2055-2070.

Cornett, Marcia Millon, Wallace N. Davidson, III, and Nanda Rangan, 1996, Deregulation in Investment Banking: Industry Concentration Following Rule 415, *Journal of Banking and Finance*, 20(1): 85-113.

Cummins, J. David, Herbert S. Denenberg, and William C. Scheel, 1972, Concentration in the U.S. Life Insurance Industry, *Journal of Risk and Insurance*, 39(2): 177-200.

DeAngelo, Harry, Linda DeAngelo, and Stuart C. Gilson, 1994, The Collapse of First Executive Corporation: Junk Bonds, Adverse Publicity, and the "Run on the Bank" Phenomenon, *Journal of Financial Economics*, 36(3): 287-336.

DeAngelo, Harry, Linda DeAngelo, and Stuart C. Gilson, 1996, Perceptions and the Politics of Finance: Junk Bonds and the Regulatory Seizure of First Capital Life, *Journal of Financial Economics*, 41(3): 475-511.

Diamond, Douglas, and Phillip Dybvig, 1983, Bank Runs, Deposit Insurance and Liquidity, *Journal of Political Economy*, 91(3): 401-419.

Docking, Diane Scott, Mark Hirschey, and Elaine Jones, 1997, Information and Contagion Effects of Bank Loan-Loss Reserve Announcements, *Journal of Financial Economics*, 43(2): 219-239.

[12] The authors used Studentized residuals and Cook's distance to identify influential outliers.

Fenn, George W., and Rebel A. Cole, 1994, Announcements of Asset-Quality Problems and Contagion Effects in the Life Insurance Industry, *Journal of Financial Economics*, 35(2): 181-198.

Fields, Joseph A., James B. Ross, Chinmoy Ghosh, and Keith B. Johnson, 1994, Junk Bonds, Life Insurer Insolvency, and Stock Market Reactions: The Case of First Executive Corporation, *Journal of Financial Services Research*, 8(2): 95-111.

Karafiath, Imre, 1988, Using Dummy Variables in the Event Methodology, *Financial Review*, 23(3): 351-357.

Karafiath, Imre, and John Glascock, 1989, Intra-Industry Effects of a Regulatory Shift: Capital Market Evidence From Penn Square, *Financial Review*, 24(1): 123-134.

Karafiath, Imre, Ross Mynatt, and Kenneth L. Smith, 1991, The Brazilian Default Announcement and the Contagion Effect Hypothesis, *Journal of Banking and Financ*e, 15(3): 699-716.

Kopcke, Richard W., 1992, The Capitalization and Portfolio Risk of Insurance Companies, *New England Economic Review*, 1992(4): 43-57.

Lang, Larry H. P., and René M. Stulz, 1992, Contagion and Competitive Intra-Industry Effects of Bankruptcy Announcements: An Empirical Analysis, *Journal of Financial Economics,* 32(1): 45-60.

Musumeci, James J., and Joseph F. Sinkey, Jr., 1990, The International Debt Crisis, Investor Contagion, and Bank Security Returns in 1987: The Brazilian Experience, *Journal of Money, Credit and Banking*, 22(2): 209-220.

Peavy, John W., III, and George H. Hempel, 1988, The Penn Square Bank Failure: Effect on Commercial Bank Security Returns—A Note, *Journal of Banking and Finance*, 12(1): 141-150.

Schipper, Katherine, and Rex Thompson, 1983, The Impact of Merger Related Regulations on the Shareholders of Acquiring Firms, *Journal of Accounting Researc*h, 21(1): 184-221.

Sefcik, Stephan E., and Rex Thompson, 1986, An Approach to Statistical Inference in Cross-Sectional Models With Security Abnormal Returns as Dependent Variable, *Journal of Accounting Research*, 24(2): 316-334.

Singh, Ajai K., and Mark L. Power, 1992, The Effects of Best's Rating Changes on Insurance Company Stock Prices, *Journal of Risk and Insurance*, 59(2): 310-317.

Smirlock, Michael, and Howard Kaufold, 1987, Bank Foreign Lending, Mandatory Disclosure Rules, and the Reaction of Bank Stock Prices to the Mexican Debt Crisis, *Journal of Business*, 60(3): 347-364.

Smith, R. T., M. Bradley, and G. Jarrell, 1986, Studying Firm-Specific Effects of Regulation With Stock Market Data: An Application to Oil Price Regulation*, Rand Journal of Economics*, 17(4): 467-489.

Stigler, George J., 1971, Theory of Economic Regulation, *Bell Journal of Economics and Management Science*, 2(1): 3-21.

Thompson, Rex, 1985, Conditioning the Return-Generating Process on Firm-Specific Events: A Discussion of Event Study Methods, *Journal of Financial and Quantitative Analysis,* 20(2): 151-168.

Watts, Ross L., and Jerold L. Zimmerman, 1986, *Positive Accounting Theory* (Englewood Cliffs, N.J.: Prentice-Hall).