

DEPOSIT INSURANCE AND MARKET ASSESSMENT OF BANKING SYSTEM STABILITY:
EVIDENCE FROM DENMARK

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Abstract

Considerable debate within academia and the banking community continues to focus on the role of fixed rate deposit insurance. In particular, some argue that mispriced deposit insurance creates further incentives for bank stockholders to take on additional risk. While previous studies of the relationship between deposit insurance and bank market values have been limited to often-modest changes in bank regulations, the 1987 initiation of deposit insurance in Denmark permits the examination of a major change in banking policy. We find that large Danish banks exhibited a modest positive reaction to the announcement of insurance, but that small and risky banks responded negatively. These results contrast with U.S. findings that fixed rate deposit insurance favors riskier banks. We attribute this difference to Denmark's use of market value accounting and a firm closure policy. Therefore, any discussion of changing the deposit insurance structure must consider the system's other regulatory characteristics.

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Introduction

A fundamental question raised in several banking studies has been whether deposit insurance induces wealth shifts among bank stockholders. The evidence primarily from studies of the United States' banking system suggests that shareholders of larger, riskier banks benefit at the expense of shareholders of smaller, more conservatively managed institutions. This conclusion, however, is derived from observing incremental changes in the U.S. system and, therefore, of questionable generalized value for banks outside the U.S.¹

On December 16, 1987 the Danish parliament legislated the introduction of a deposit insurance fund. Prior to initiating deposit insurance, the Danish banking authorities had adopted a highly predictable merge-and-close policy with respect to troubled banks. In contrast to the experience in the U.S. during this period, the Danish policy was a coordinated enforcement of both capital standards and a strict bank closure rule while the institution still exhibited significant positive net worth.² In addition, Danish banks followed a mark-to-market accounting system that enhanced outside monitoring by various stakeholders.³ Pozdena (1991) notes that such a system had resulted in an orderly disposition of weak banks at a very low cost to banking authorities. He concludes that the Danish experience differed from

¹ The most recent experience of United States' regulatory forbearance resulted in the failures of savings and loan associations (see Kane, 1989). An example of the limited scope of research is Duan, Moreau, and Sealey (1992) who were restricted to looking at the 1981 change in capital requirements in their assessment of the role of deposit insurance in banking managerial decision making.

² Stover (1997) found that the Early Resolution Program followed by the Resolution Trust Corporation in the early 1990s accomplished a similar result but only for a very limited number of institutions. The similarity is primarily in the government intervention while the failing institution still had positive net worth.

³ In comparison of U.S. and Danish banking systems, Bernard, Merton, and Palepu (1995) concluded that the Danish mark-to-market system would not have been effective without that country's predictable closure policy.

that of the United States in that the former supported the role of deposit insurance within a system of regulation that primarily relied on bank capital to maintain safety and soundness.

We focus on the stock market consequences of initiating the insurance system on Danish bank shareholders for two principal reasons. First, at the aggregate level, the market reaction sheds light on the risk and return properties of deposit insurance for the banking system as a whole. Conventional ex-post measures of banking system performance are problematical when it comes to assessing deposit insurance, as the presence of other confounding factors makes it difficult to isolate the deposit insurance contribution. However, to the extent that the stock market acts as if it has rational expectations, then the immediate sharemarket response to any regulatory change should reflect the subsequent actual consequences in an unbiased manner. Thus, a negative market response to the introduction of deposit insurance could indicate pessimism regarding the future stability of the banking system. On the other hand, a positive response would indicate anticipation of higher future returns. Second, at the level of individual banks, the market reaction provides guidance on possible differential consequences. Recent U.S. evidence from O'Hara and Shaw (1990) and Cornett and Tehranian (1990) has indicated that changes in bank regulatory policy can induce wealth effects that depend on bank size and risk.⁴ Our focus on the Danish experience allows us to examine whether banks of differing characteristics may respond differently to the introduction of deposit insurance.

In the next section we provide a summary of the events leading up to the Danish adoption of deposit insurance and identify the key events on which we subsequently focus. Section II describes our

⁴ O'Hara and Shaw (1990) examined the bank shareholder wealth effects of the announcement of the "Too-Big-To-Fail" doctrine. Large banks exhibited positive returns. They further cautioned that the case-by-case approach of the Comptroller of the Currency in revoking national bank charters could have caused the market to consider the new doctrine as a noisy signal. Cornett and Tehranian (1990) examined the effect of the Garn-St. Germain Depository Institutions Act of 1992 on both commercial bank and thrift institution returns. Again, large institution shares fared well at the expense of small firms.

data and outlines our hypotheses and methodology. Section III contains our results. We find that the introduction of the deposit insurance legislation to the Danish parliament had a positive impact on banking sector market value, although this response is statistically significant only for large banks. Moreover, we find that high-risk banks responded negatively to other events in the legislative process. Section IV summarizes our findings and provides some concluding remarks.

I. Danish Banking System and Introduction of Deposit Insurance

The role of deposit insurance must be examined in the context of the remainder of bank regulatory discipline. Higher capital requirements force stockholders to bear some of the risk of management decision while strict closure rules reduce risk taking incentives for management/stockholders. The extent of this implicit coverage potentially offsets the risk taking incentives of a fixed rate deposit insurance system.⁵ Only when governmental units fail to consistently enforce regulatory discipline does such a system fail to operate as was evidenced by the thrift institution crisis in the U.S. during the later 1980s. As Kane (1985) noted in observing the U.S. system during that period, deposit insurance resulted in a shifting of wealth from well-capitalized and managed banks to large, risky banks. The principal characteristics of the U.S. system were non risk-adjusted deposit insurance coupled with significant regulatory forbearance.

Our examination of the introduction of deposit insurance in Denmark must be conditioned by the market perception of the country's existing regulatory system. Furthermore, any comparison of our results with those of other studies that have concentrated on the U.S. banking system must also recognize the essential differences in the two systems.

⁵ Examples include Duan, Moreau, and Sealey (1992) and Billett, Garfinkel, and O'Neal (1998). Other studies [Pyle (1986), Ronn and Verma (1986), and Pennachi (1987)] have explicitly allowed for capital infusions and variable closure rules.

A. Danish Regulatory System

During the post-World War II period, the Danish regulatory system has been consistently predictable in its emphasis on capital adequacy and prompt closure at the time of the adoption of the deposit insurance system. The Commercial Banks and Savings Banks Consolidated Act of 1974 currently forms the legal structure for banking regulation in Denmark. The Danish Inspectorate of Commercial and Savings Banks (currently entitled the Finæstilsynet) serves as the regulatory agency under the auspices of the Ministry of Interior. The latter has the power to both issue and revoke bank charters. In this system, only banks with a relatively high capital/asset ratio were considered secure during the latter 1980s. If a bank's capital ratio dropped below that threshold based on bank characteristics, part of the profits had to be diverted to a statutory reserve that is considered part of capital. The regulated minimum ratio was 8% of total debt and guarantees. Failure to satisfy these standards resulted in severe sanctions. At 6%, the bank had to seek additional capital from the public markets. If the bank could not meet these standards, closure was imminent. The effect of this system was to give an incentive to weak banks to find a merger partner among financially strong banks. The alternative was closure and loss of capital. According to Pozdena (1992), the Danish legal system both facilitated mergers and allayed any possible antitrust objections. Consequently, only one Danish bank had faced bankruptcy between the end of World War II and 1987 when our study of market response to the proposed deposit insurance begins.⁶

Complementing the rigid regulatory policy was Denmark's use of mark-to-market accounting.⁷ Danish financial institutions were required to provide for valuation adjustments in their respective asset portfolios caused by interest rate, exchange rate, and credit risk factors. Such requirements are not trivial in that as much as 30% of Danish bank assets are stocks and bonds. This

⁶ In the period immediately before public consideration began for a deposit insurance system, Kronebanken, with assets of \$1.873 million, was taken over by Provinsbanken in 1985 and 6'Juli Banken, with assets of \$144 million, was merged into Sydbank in 1987. The resolution of the 6'Juli Banken situation required a relatively long period of suspended payments and considerable financial support from the Nationalbank.

system enhances bank stability in two ways. First, it can provide an effective means of assessing the risk of insolvency and permit effective regulatory intervention. Second, because the mark-to-market accounting procedure is also used for financial reporting purposes, outside monitoring by shareholders and other stakeholders is enhanced.

B. Deposit Insurance Legislation

Table 1 details the events leading up to the adoption of deposit insurance in Denmark. On December 22, 1986 the European Economic Community (EEC) recommended that those member countries without a deposit insurance system establish such a program. While this proposal represented an official recommendation, a summary of the proposal was not presented in the Danish press until February 4, 1987 with a summary published in *De Europæiske Fællesskabers Tidende*. After negotiations with the respective banking organizations and the Nationalbank, the Ministry for Industry put forward a bill to parliament for a Deposit-Guarantee Fund on October 28, 1987.

Insert Table 1 About Here

The proposed system required the establishment of a fund organized as a private independent institution. It would cover deposits of commercial banks, savings banks, cooperative banks, and branches of foreign banks in Denmark, and certain credit institutes with special authorization (*e.g.*, banking houses) in the event of bankruptcy. The financing of the program was to be based on deposits and, if needed, guarantees from the covered financial institutions. Each institution was to be assessed a maximum of two-tenths of 1% of total deposits. The proposal limited general deposit coverage to Kr. 250,000 with exceptions promised for deposit accounts held for pension purposes, children's savings accounts, and certain other categories. While the political pressure in the Folketing (parliament) focused on protecting small depositors, the proposed system did not specify a maximum loss. Thus, it provided *de facto* total coverage of all depositors up to the Kr. 250,000 limit. Finally, if the fund were found to be inadequate to cover a larger bankruptcy, then the proposed

⁷ In contrast, financial institutions in the United States were principally required to produce historical-cost book value statements. Bernard, Merton, and Palepu (1995) detail how the two systems compare in the context of

regulations permitted the fund to borrow to cover the shortfall. The Danish government would guarantee such loans.

Of the remaining legislative events, only those critical events identified by Holm-Nielsen and Fogh (1989) were included in our sample. In all, there were eight such events, culminating with the date the new law went into effect. We examined the Danish financial press to check that these announcements contained new information that was unlikely to have been anticipated by the financial markets and to ensure that no other significant events occurred on these dates.

II. Data and Empirical Hypotheses

A. Data

We use daily stock returns of all 49 banks listed on the Københavns Fondsbørs, henceforth the Copenhagen Stock Exchange (CSE), during the period January 1, 1986 through March 22, 1988. These data were obtained from the Aarhus School of Business, Aarhus, Denmark, as were the adjusted daily return data for (I) the value-weighted index of all stocks listed on the CSE and (II) the value weighted index of all bank stocks listed on the CSE.

In order to allow for the possibility that stock market reaction may vary according to bank size and risk, we subdivide our sample into portfolios. For portfolios based on size, we use the three size groups defined by the Danish supervisory authority (Finæstilsynet). This categorization is based on a bank's share of the banking system's total active capital as defined by deposits + debt + equity. Specifically, the categorization is as follows:

Large banks:	at least 4% of active capital
Medium banks:	between 0.3% and 4% of active capital
Small banks:	No more than 0.3% of active capital

For portfolios based on risk, we rank banks according to capital ratios. Those in the lower third are defined as high risk; those in the middle third as medium risk; and those in the upper third as

their overall regulatory structures.

low risk. In order to eliminate any correlation between size and risk, and because any risk-based effect is most likely to exist for small Danish banks, we group only small banks into these three risk portfolios. Table 2 provides some descriptive statistics for Danish banks during the sample period. On average, the large banks were thirteen times the size of medium banks, which were, in turn, seven times as large as the small banks. The mean equity/asset ratios ranged from 5.9% for the large bank category to 11.5% for the smallest bank category.⁸ Similarly, the smallest banks were the most profitable. The general trend in sample equity returns was negative regardless of size categories.

B. Hypotheses

The paramount issue in our study is the market reaction of Danish bank stocks to crucial events surrounding the introduction of the new deposit insurance system. Reaction may occur because investors interpreted any or all of these events as signaling a potential change in bank regulatory policy. Specifically, the introduction of deposit insurance provided Danish banking regulators with an opportunity to relax their former rigid merger-and-close policy. As noted by Podzena (1992), a deposit insurance fund could buffer the pressure on bank regulators and thus lead to less diligent monitoring of bank capital. Given the experience of other countries in which deposit insurance co-existed with an often-slack regulatory policy, Danish investors may have concluded that the deposit insurance fund would substitute for aggressive regulation.

For the banking sector as a whole, such a perception has ambiguous implications. On the one hand, banks might be expected to benefit if a relaxed regulatory environment encouraged them to adopt riskier investment strategies in the pursuit of higher returns. On the other hand, demand for bank stocks could fall if the market believed that a weakened regulatory policy could result in a destabilized banking sector. Of course, there is another reason why the aggregate banking sector could suffer from the introduction of the deposit insurance scheme. If Danish investors believed that

⁸ Equity capital only is employed in the numerator of these ratios. They should not be confused with the total capital/assets ratio used in the Danish regulatory insolvency determination. Banks are permitted to use other liabilities in achieving the minimum regulatory capital requirements.

the establishment of such a scheme was simply window-dressing to placate EEC concerns and that banking regulatory policy would therefore continue as before, then the only expected impact on banks would be an erosion in profitability due to the payment of fund premia.

Previous research (e.g., O'Hara and Shaw (1990), Cornett and Tehranian (1990)) has suggested that the market reaction to changes in deposit insurance coverage and/or bank regulatory policy may vary according to bank size and risk. Such differential wealth effects are also likely to be present in our data. With respect to size, large Danish banks may be expected to experience a more positive reaction than small banks for two reasons. First, the previous merger-and-close policy required large banks to bail out troubled small banks. Although such mergers had generally been undertaken on attractive terms to the acquiring bank, the risk remained that at any future time a large bank could be required to rescue one or more small banks at a significant financial cost.⁹ To the extent that the introduction of deposit insurance suggested that troubled banks would be closed rather than merged, this risk was reduced and large banks

⁹ Indeed, discussions with market participants suggest that such fears were on the rise at this time due to increased licensing of risky banks during the 1980s.

could be expected to benefit. Second, if a large bank failed and additional fund borrowing was required to finance the payout to depositors, then small banks could expect to bear part of the costs in the form of higher future premiums. Consequently, the presence of a “too-big-to-fail” provision in the insurance scheme regulations may have imposed higher net costs on small banks.

The scenario with respect to risk is not so clear. The conventional wisdom is that deposit insurance benefits high-risk banks more than low risk banks because the bankruptcy protection benefits are more significant for the former, thereby providing them with a greater reduction in the cost of deposits. Such an argument is unlikely to apply here since Danish depositors were already effectively covered by the merger-and-close policy. Nevertheless, to the extent that the introduction of deposit insurance precedes a more relaxed regulatory policy, then risky banks could expect to be granted more latitude than previously and thereby benefit from increased opportunities to manage their way out of trouble. On the other hand, the merger-and-close policy had provided for early identification of troubled banks so that required mergers had generally been applied at a positive net worth with the administration costs borne by the acquiring bank. Consequently, shareholders of the acquired banks generally emerged with positive equity. Under a deposit insurance scheme, however, regulators may have an incentive to delay closure, thereby allowing the troubled institution to deteriorate further, and reducing the eventual liquidation payment to shareholders. Thus, although the substitution of deposit insurance for merger-and-close can be expected to benefit risky banks by lowering the probability of regulator intervention, this could potentially be offset by the corresponding higher shareholder loss in those states where intervention becomes necessary.

III. Empirical Results

To examine the effect of the introduction of deposit insurance on the aggregate Danish banking sector, we regress the daily bank index return on the market return and zero-one dummy variables for each event listed in Table 1. That is, we estimate:

$$R_t = \alpha + \beta R_{mt} + \sum_{k=1}^8 \gamma_k D_{kt} + \varepsilon_t \quad (1)$$

where:

- R_t = day t return on the index of Danish banking stocks
- R_{mt} = day t return on the Danish stock market index
- D_{kt} = 1 if day t corresponds to event k in Table 1, 0 otherwise

To examine the differential effect of the introduction of deposit insurance on subsets of the Danish banking sector categorized by size and risk, some refinement of (1) is necessary. In particular, since all our dependent variable data are drawn from firms in the same industry, the error terms in (1) are likely to be correlated. To overcome this problem, we estimate the following systems of seemingly unrelated regression equations:¹⁰

$$R_{it} = \alpha_i + \beta_i R_{mt} + \beta_{i1} R_{mt-1} + \beta_{i2} R_{mt-2} + \sum_{k=1}^8 \gamma_{ik} D_{kt} + \varepsilon_{it} \quad i=1,2,3 \quad (2)$$

and

$$R_{jt} = \alpha_j + \beta_j R_{mt} + \beta_{j1} R_{mt-1} + \beta_{j2} R_{mt-2} + \sum_{k=1}^8 \gamma_{jk} D_{kt} + \varepsilon_{jt} \quad j=1,2,3 \quad (3)$$

where R_{it} is the day t stock return on portfolios $i = 1$ (large banks), 2 (medium banks), 3 (small banks), and R_{jt} is the day t stock return on portfolios $j = 1$ (high-risk banks), 2 (medium risk banks), 3 (low risk banks). The lagged market returns are included to control for thin trading, particularly in small banks.

Ordinary Least Squares estimation of equation (1) yields (t -statistics in parentheses):

$$R_t = -0.005 + 0.992R_{mt} - 0.590D_{1t} + 0.130D_{2t} + 1.701D_{3t}$$

¹⁰ For other examples of this approach in similar contexts, see Binder (1985), Cornett and Tehranian (1990), and Wagster (1996).

$$\begin{array}{cccccc}
& (0.22) & & (39.96) & & (1.10) & & (0.24) & & (3.15) \\
- & 0.251D_{4t} & - & 0.165D_{5t} & - & 0.007D_{6t} & + & 0.111D_{7t} & - & 0.060D_{8t} \\
& (0.47) & & (0.31) & & (0.01) & & (0.21) & & (0.11)
\end{array}$$

Adj. $R^2 = 0.74$

The bank index returns are, unsurprisingly, determined primarily by aggregate stock market returns. In addition, the introduction of the deposit insurance legislation to Parliament, D_{3t} , is associated with a positive abnormal return that is significant at the 1% level. None of the other events had a significant impact.

The results of this simple procedure provide some evidence that the introduction of deposit insurance was expected to benefit the banking sector, consistent with the hypothesis that the insurance fund might be used as a substitute for diligent monitoring, thereby permitting banks to obtain risk-enhanced returns. However, as we have previously discussed, this aggregate effect may conceal considerable intra-sample variations and it is to these issues that we now turn.

Panel A of Table 3 presents the results of our seemingly unrelated regression estimation of (2) for the entire set of events listed in Table 1.¹¹ The most striking feature is the evidence that the positive aggregate reaction to the introduction of deposit insurance legislation to Parliament is entirely attributable to large banks. As shown in column 1 of Table 3, large banks experienced an average abnormal return of 2.209% on this date, significant at the 1% level. By contrast, the abnormal returns for medium and small banks are insignificantly different from zero. Moreover, the χ^2 statistic in column 4

¹¹ These results examined one-day returns for event dates. We also tested two-day returns that exhibited similar results.

rejects the null hypothesis of abnormal returns for each size-based portfolio indicating that the observed large bank reaction is significantly greater than those of medium and small banks.

Although no significant investor reaction to the remaining eight events is evident, there remains the possibility that their cumulative effect may differ across banks. To examine this possibility, we tested the hypotheses:

$$\text{Ho: } \sum_{k=1}^8 \gamma_{1k} = \sum_{k=1}^8 \gamma_{2k} \quad (\text{Large banks versus Medium banks})$$

$$\text{Ho: } \sum_{k=1}^8 \gamma_{1k} = \sum_{k=1}^8 \gamma_{3k} \quad (\text{Large banks versus Small banks})$$

$$\text{Ho: } \sum_{k=1}^8 \gamma_{2k} = \sum_{k=1}^8 \gamma_{3k} \quad (\text{Medium banks versus Small Banks})$$

Evaluation of each of these hypotheses yields a test statistic that is asymptotically distributed as a χ^2 with one degree of freedom. The computed test statistics are respectively:

$$\chi^2 = 1.833 \text{ (significant at 0.176 level)}$$

$$\chi^2 = 2.871 \text{ (significant at 0.090 level)}$$

$$\chi^2 = 0.087 \text{ (significant at 0.768 level)}$$

Thus, the cumulative effect of all eight events appears to have had no discernible differential impact on large banks relative to medium banks, or on medium banks relative to small banks, but had a marginally greater impact on large banks relative to small banks. Given that the ultimate Parliamentary vote on December 16, 1987 was 116 in favor to only 10 against the proposal, it appears that approval was a foregone conclusion. Thus, Panel B of Table 3 reports the model results for the period through the announced preparation of the legislation. These results further show that the significantly positive cumulative abnormal returns for the complete sample were driven by the response of the largest banks.

Insert Table 3 About Here

These results suggest that large bank share prices experienced a more positive reaction to the events culminating in the introduction of deposit insurance than did other banks, both with respect to an individual event and, more marginally, with respect to the cumulative effect of all eight events. This is consistent with our hypothesis that the introduction of deposit insurance potentially reduced the risk of large banks being required to undertake a costly merger with a failed institution. However, there remains the possibility that this observed size-based difference partially reflects, or is partially obscured by, a correlation between bank size and default risk. To investigate this issue, we examine small bank data in isolation, categorizing these banks according to capital ratios as a proxy for default risk. We then apply seemingly unrelated regression estimation of (3) to these data.

Table 4 presents the results of this analysis. As can be seen in Panel A for the highest risk banks, these banks responded negatively to events 2 (the first publication of the EEC recommendation) and 4 (the first parliamentary debate) with abnormal returns of -2.52% and -2.28%, respectively, both significant at the 1% level. However, no other significant reactions were apparent.

Analysis of the cumulative effect of all eight events yielded the following test statistics:

High risk versus medium risk banks	χ^2	=	5.045 (significant at 0.025 level)
High risk versus low risk banks	χ^2	=	2.777 (significant at 0.096 level)
Medium risk versus low risk banks	χ^2	=	0.038 (significant at 0.846 level)

These results imply that the cumulative impact of the deposit insurance legislation on high-risk banks was significantly different from that experienced by other banks. This conclusion is buttressed by the more limited cumulative abnormal returns illustrated in Panel B of Table 4. Again, given the likely Parliamentary approval when the insurance system legislation was formally drafted, the significantly negative cumulative return was driven by the market's response for the highest-risk banks.

Insert Table 4 About Here

In summary, we find that the share prices of high risk small banks experienced a more negative reaction to the events culminating in the introduction of deposit insurance than did other small banks, both with respect to two individual events and with respect to the cumulative effect of all eight events. This outcome is particularly interesting, insofar as it contradicts both the conventional wisdom that increased deposit insurance coverage primarily benefits riskier banks and the U.S. evidence of O'Hara and Shaw (1990) supporting this view. However, the standard argument assumes that banking regulatory policy otherwise remains the same. But, as we have seen, the Danish case provided regulators with the incentive to relax their formerly diligent surveillance, resulting in later identification of troubled institutions. Even though the introduction of deposit insurance may have provided no increase in protection for depositors, it potentially reduced the partial protection previously afforded shareholders from risk-taking managers.

IV. Conclusions

Previous empirical research focusing on the role of deposit insurance in a banking system has primarily concentrated on relatively minor alterations in the United States' scheme. While providing important insight into the managerial effects of that insurance system, such research has been severely limited in its ability to draw generalizable conclusions. The Danish decision to incorporate deposit insurance into a banking system known for mark-to-market accounting and a rigid bank closure procedure provides an opportunity to examine a major change in bank regulation.

While the general market response to the introduction of deposit insurance legislation was positive, that response was principally among large Danish banks. An important question that evolves from this result is whether such a response was due to the financial viability of the large banks or their reduced responsibility in assisting failed institutions. An examination of the role of solvency risk in the small bank sample suggests that the higher risk banks exhibited a greater negative response to the proposed deposit insurance system. This result contrasts with studies of the U.S. system in which the general conclusion has been that deposit insurance benefits the more risky banks.

This suggests that arguments concerning a fixed rate insurance system must be made in the context of the country's overall regulatory structure.

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Table 1
Event Descriptions for Actions Involved in the Establishment of
the Danish Deposit Insurance System

Event	Date	Description
1	December 22, 1986	European Economic Community (EEC) suggests that all member countries should have financial institution deposit insurance
2	February 4, 1987	First date the EEC suggestion was published in <i>De Europæiske Fællenkabers Tidende</i>
3	October 28, 1987	Deposit insurance legislation introduced to Danish parliament
4	November 3, 1987	Legislation first debated in parliament and referred to standing committee with responsibility for banking legislation
5	December 3, 1987	Standing committee reports back
6	December 10, 1987	Second debate and standing committee recommendations are approved
7	December 16, 1987	Parliament passes the legislation with 116 members for it and 10 against
8	February 25, 1988	The deposit insurance law goes into effect

Source: M. Holm-Nielsen and B. W. Fogh (1989), "Retlige Problemes ved anvendelse of Lov om en undskdergarantifond," *Justitia* 12(3), pp. 1-70.

Table 2
Descriptive Statistics for Danish Banking Samples. Mean Values of Relevant
Variables with Standard Deviations in Parentheses.

	Large Banks	Medium Banks	Small Banks
Asset Size (Danish Kr)	83,509,780 (39,586,628)	6,596,608 (5,453,591)	892,254 (500,607)
Equity/Assets (%)	5.90 (0.20)	7.80 (3.00)	11.5 (11.72)
Advances/Deposits	89.10 (11.00)	108.40 (18.50)	93.10 (18.10)
Net Income/Revenues (%)	2.86 (0.42)	3.67 (8.80)	4.26 (6.50)
Shareholder Returns* (%)	-0.050 (1.452)	-0.036 (2.012)	-0.035 (2.534)

* Daily returns are calculated for the period January 2, 1986 through March 22, 1988.

Table 3
Portfolio Abnormal Returns for Danish Banks According to Size at Each Event
in Establishment of Danish Deposit Insurance System

This table reports the abnormal returns for portfolios of Danish banks according to asset size at each of the eight events in which a documented step was made toward introduction of deposit insurance. These estimates represent the regression coefficients for the dummy variables from Equation (2) corresponding with each of the eight events. The dummy variable equals one for the event and zero otherwise. The Wald test measures the significance of the total portfolio returns at each event.

Events	Bank Size			$\gamma_1^i = \gamma_2^i$ $= \gamma_3^i = 0$ $\chi^2 (3)$
	Large γ_1^i	Medium γ_1^i	Small γ_3^i	
Panel A – Abnormal Returns for All Events in Adoption of Deposit Insurance System				
1. EEC suggest deposit insurance	0.307 (0.466)	-0.901 (1.195)	-0.548 (1.023)	2.066
2. EEC suggestion published	0.384 (0.581)	0.477 (0.633)	-0.716 (1.334)	2.523
3. Insurance legislation prepared	2.205** (3.315)	1.012 (1.333)	0.150 (0.278)	11.157**
4. First parliamentary debate	-0.065 (0.100)	0.278 (0.369)	-0.487 (0.911)	1.107
5. Committee report	-0.380 (0.577)	-0.258 (0.343)	0.185 (0.346)	0.500
6. Committee recommends approval	0.001 (0.002)	0.349 (0.464)	-0.422 (0.789)	0.950
7. Parliament passes insurance regulation	0.188 (0.286)	0.262 (0.348)	-0.327 (0.613)	0.575
8. Law goes into effect	-0.081 (0.124)	-0.019 (0.025)	0.021 (0.040)	0.021
Cumulative Effect $\chi^2 (8)$	12.111	4.234	4.872	
Total Effect $\chi^2 (24)$				19.249
Panel B – Cumulative Abnormal Return Effect Through Legislation Preparation				
Cumulative Effect $\chi^2 (3)$	11.542***	3.606	2.907	
Total Effect $\chi^2 (9)$	–	–	–	15.939*

** Significant at the .05 level.

* Significant at the .10 level.

Table 4
Portfolio Abnormal Returns for Small Danish Banks According to Solvency Risk
at Each Event in Establishment of Danish Deposit Insurance System

This table examines the reaction of small banks with different levels of capital/assets to the events leading up to the introduction of the deposit insurance system. These estimates represent the regression coefficients for the dummy variables from Equation (3) corresponding with each of the eight events. The dummy variable equals one for the event and zero otherwise. The Wald test measures the significance of the total portfolio returns at each event.

Events	Small Bank Solvency			$\gamma_1^i = \gamma_2^i = \gamma_3^i = 0$ $\chi^2 (3)$
	High Risk γ_1^i	Average Risk γ_1^i	Low Risk γ_3^i	
Panel A – Abnormal Returns for All Events in Adoption of Deposit Insurance System				
1. EEC suggest deposit insurance	-0.700 (0.823)	0.412 (0.569)	-1.295 (1.422)	3.525
2. EEC suggestion published	-2.524** (2.907)	-0.283 (0.394)	0.554 (0.604)	8.863**
3. Insurance legislation prepared	-0.973 (1.112)	1.128 (1.556)	0.283 (0.307)	4.517
4. First parliamentary debate	-2.275** (2.645)	-0.469 (0.652)	1.146 (1.257)	0.309
5. Committee report	0.290 (0.338)	-0.068 (0.095)	0.321 (0.353)	1.564
6. Committee recommends approval	-0.343 (0.399)	-0.293 (0.407)	-0.614 (0.673)	0.962
7. Parliament passes insurance regulation	-0.064 (0.075)	-0.100 (0.140)	-0.780 (0.858)	0.007
8. Law goes into effect	0.287 (0.335)	-0.169 (0.236)	-0.048 (0.053)	0.028
Cumulative Effect $\chi^2 (8)$	17.931**	3.606	5.403	
Total Effect $\chi^2 (24)$				27.943
Panel B – Cumulative Abnormal Return Effect Through Legislation Preparation				
Cumulative Effect $\chi^2 (3)$	10.317**	2.906	2.456	
Total Effect $\chi^2 (9)$	–	–	–	16.890**

** Significant at the .05 level.

* Significant at the .10 level.