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INVESTOR PROTECTION AND THE COSTS OF PUBLIC POLICY FAILURE

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ABSTRACT

Competitive markets respond automatically to change. Corrective forces are delivered by the pricing mechanism, where price changes indicate new allocations in the consumption of economic resources. Those market participants that are unable to respond adequately to change fail, resulting in a restructuring of the marketplace. Such failures are necessary in order to prevent a misallocation of scarce resources.

Public policies, by attempting to suppress or eliminate the dynamic corrective processes of competitive markets, may lead to significant distortions in the marketplace. Using the collapse of the American Savings and Loan Industry as a case study, this paper analyses the distortions that may arise in the provision of financial services as a consequence of misguided public policy.

While it is recognised that there may be scope for some public sector involvement in the financial sector of an economy, the overriding theme is that the goal of financial stability would best be served by actively promoting the corrective forces of private, competitive markets.

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INTRODUCTION

Investor protection schemes, and, more specifically, policies of deposit insurance, have traditionally been justified in terms of informational asymmetries. Small investors, it is argued, not only lack the resources to assimilate the information necessary for rational decision-making with regard to investment choice, but also, given such information, lack the sophistication to make a sound interpretation thereof. The problem is exacerbated by the fact that such small, informationally-disadvantaged investors are frequently characterised by undiversified portfolios, and are consequently unable to absorb material losses to the value of their investments.

Deposit insurance has been further rationalised by those who maintain that exposing these investors to the possibility of material losses will substantially destabilise the financial services sector of an economy, disrupt the payments mechanism, and adversely affect the aggregate macroeconomy. The alleged reasons are as follows: certain investors, upon witnessing material losses suffered by others (as a result of, for instance, the insolvency of a particular financial institution), may, in an effort to secure the value of their own investments, react by withdrawing their funds from their respective institutions, regardless of the financial condition of those institutions. The resultant abnormal aggregate withdrawals may create a liquidity crisis which, if it is of sufficient magnitude, may degenerate into a solvency crisis as institutions attempt to liquidate assets at short notice. The deeper the solvency crisis, the heavier the losses suffered by investors, and the more severe the impact on the economy as a whole.

Deposit insurance, then, is seen by its proponents as a panacea, which, by securing the value of investors' funds, eliminates both the problem of informational asymmetries, and the danger of irrational "bank runs".

This paper, inspired by the spectacular collapse of the American Savings and Loan Industry during the 1980s, adopts a very different stance with respect to deposit insurance, and investor protection schemes generally. The traditional justifications behind deposit insurance are criticised on the grounds that the potential for instability in the financial services sector

can be significantly reduced by the efficient operation of a lender of last resort, while unsophisticated investors can be afforded a "safe haven" without the all-encompassing cover of deposit insurance.

Deposit insurance is not, however, merely seen as being unnecessary. It is argued that, as per any insurance contract, by insulating investors from any risk of loss, deposit insurance erodes market discipline, creates perverse risk-shifting incentives for insured financial institutions, and exposes the deposit insurer to the insurance market problems of moral hazard and adverse selection. When this deposit insurer is an agency of the state (as has been the custom worldwide), further problems arise, thus increasing the potential dangers of deposit insurance schemes. These include both agency problems, where the interests of bureaucrats do not coincide with the interests of the public they represent, and problems of "regulatory capture", where regulators actively pursue the interests of focused minority groups at the expense of the interests of the majority. Ultimately, investor protection schemes, by tampering with the dynamic corrective processes of competitive markets, may result in both technical and allocative inefficiencies, with adverse consequences not only for the financial services sector, but also for the economy as a whole.

This investigation into investor protection schemes was further motivated by the rapid changes being experienced by the financial services sector in South Africa. Technological advances, particularly in the fields of telecommunications and computing, are redefining the nature of the industry, while the Mutual Banks Bill, tabled in the South African Parliament in June 1993, gives rise to the prospect of increased competition in the provision of financial services, and paves the way to a new banking structure similar to the Savings and Loan Industry in the United States.

These changes, as well as the increased availability of financial services to black South Africans, unschooled in personal financial management, will, no doubt, lead to calls for increased regulation of financial institutions. The losses suffered by investors as a result of recent financial scandals (the most notable of which being the 1992 Masterbond debacle),

strengthens the case for investor protection. The Melamet Report[1], presented to the Deputy Minister of Finance in March 1993, which advocates a "holistic" approach to financial services regulation, can be seen as a step in this direction.

The paper is structured as follows: Chapter One reviews the general theory of insurance and analyses in detail the case for state-sponsored deposit insurance. In the second chapter, a model of risk-shifting by the owners of financial institutions is constructed, and certain predictions are made as to the possible dangers of the moral hazard, adverse selection and agency problems that arise when the obligations of financial institutions are guaranteed by the state. Chapter Three is a case study of the collapse of the American Savings and Loan Industry, providing empirical support for the predictions generated in Chapter Two. The fourth chapter considers various techniques, common to all insurance markets, that may be used to resolve the perverse incentives inherent in state-sponsored deposit insurance schemes. The emphasis is on a revitalisation of market discipline as an alternative to further reliance on the regulatory apparatus. Finally, in the appendix to Chapter Four, a contemporary model of private self-insurance for financial institutions is presented. The main findings of the paper are then summarised in the conclusion.

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[1]Report of the Committee of Inquiry Into the Feasibility of a Holistic Approach for Financial Supervision of Financial Institutions, Financial Services and Deposit-Taking Institutions, a report submitted by Justice D.A. Melamet to the Deputy Minister of Finance, Johannesburg, 31 March, 1993.

CHAPTER 1

THE THEORY OF INSURANCE

1.1 THE ECONOMICS OF UNCERTAINTY AND RISK

1.1.1 Uncertainty and Risk

Economic agents rarely, if ever, operate within the confines of certainty. For most, the outcomes of everyday decision making are "risky" or probabilistic. In many cases, the probability of a particular outcome may be known objectively. One can be certain that, in a coin-tossing experiment with an unbiased coin, the probability of the outcome being "heads" at each toss of the coin, is 50 percent. The decision to call "heads", however, is still risky, but the exposure to risk is known. Sometimes, the probability of any outcome may not be objectively known. When one places a bet on a particular horse, one cannot know with certainty the probability of that horse being a winner. Under such circumstances, individuals will form a subjective probability based on all the relevant information at their disposal.

1.1.2 The Expected Utility Hypothesis

Consider an economic agent faced with the following decision: a certain gift of R2 million, or a gamble based on the outcome of a coin toss. If the outcome is "heads", the agent receives R4 million, yet if it is "tails", the agent receives nothing. The expected value of the gamble, defined as the weighted average of the payoffs of the possible outcomes, is equal to the certain value of the gift, namely R2 million. This is calculated as follows:

R2 million = (50%) R4 million + (50%) RO

Empirically, however, one would find that most economic agents would not be indifferent between the certain gift of R2 million and the gamble described - in most cases, a decision would be made in favour of the certain gift. An agent's reservation price, (i.e., the value of the certain gift that would leave the agent indifferent between it and the risky gamble), will typically be substantially less than R2 million.

The formal explanation for this phenomenon of avoiding gambles was first offered by a contemporary of Adam Smith, Swiss mathematician and cleric Daniel Bernoulli (Cooter and Ulen 1988). His insight was to resolve the paradox that reservation prices are not necessarily equal to expected payoffs by postulating that economic agents, when faced with risky decisions, do not attempt to maximise expected monetary values, but rather expected utility. The introduction of utility paved the way for a model of decisionmakers' attitudes towards risk.

1.1.3 Risk Aversion

Bernoulli hypothesised that the common relationship between money or wealth (W) and utility (U) was such that as wealth increased, utility increased, but at a decreasing rate. In terms of differential calculus, this can be expressed as follows: $U'(W) > 0$ and $U''(W) < 0$. For example, if one's wealth stands at R1 000, an additional R1 000 will add more to total utility than it would if one's wealth stood at R10 000. An individual whose utility function in wealth exhibits such diminishing marginal utility may be termed "risk averse". Following Bernoulli, economists are generally agreed that the attitude of most economic agents towards risk is one of aversion, although it is recognised that there may be exceptional cases of risk neutrality or risk preference.

A more meaningful definition of risk aversion is as follows: an individual is deemed to be risk averse when the utility of a certain prospect of wealth is higher than the expected utility of an uncertain prospect of equal expected monetary value. This may be demonstrated using Figure 1-1 (overleaf).

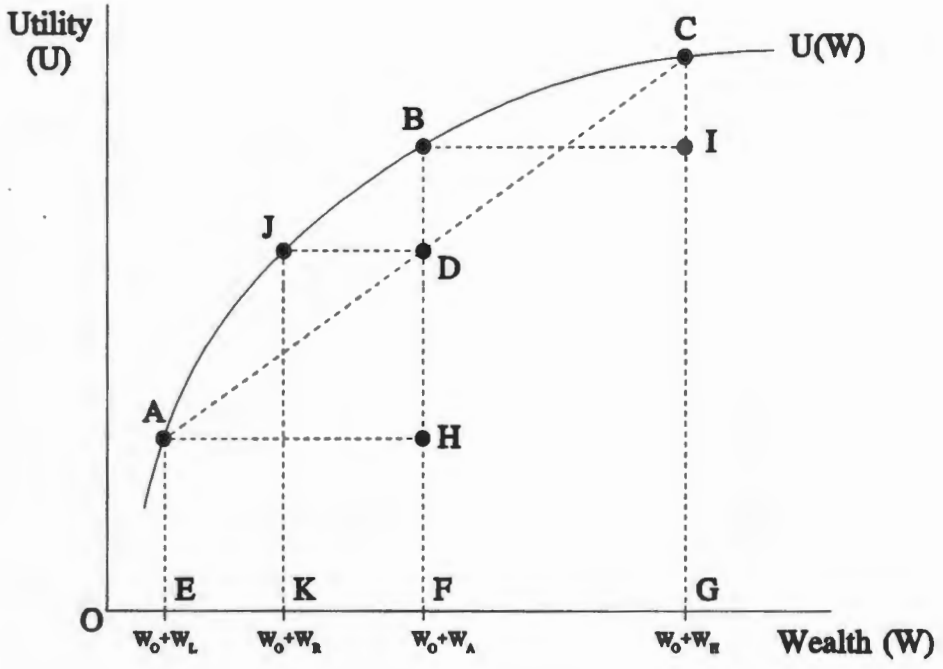

FIGURE 1-1
The Diminishing Marginal Utility of Wealth

U(W) is the utility function of a risk-averse individual, such that $U'(W)>0$ and $U''(W)<0$. Assume that the individual has a current level of wealth W_0 and is presented with the following choice: a gift of amount W_A, or a risky prospect with possible outcomes W_L and W_H with probabilities P_L and P_H respectively, where $P_L=P_H=½$. Further assume that the expected monetary value of each option is the same i.e. $W_A=P_LW_L+P_HW_H$. Graphically, this is represented by distance EF=FG.

If the individual elects to take the certain gift, the associated utility is represented by distance BF. In order to identify the expected utility of the risky prospect, the line AC is constructed, representing the weighted average of the utilities of the possible outcomes, i.e. $P_LU(W_0+W_L)+P_HU(W_0+W_H)$. Since EF=FG, the expected utility of the risky prospect is equal to distance DF. Clearly, the utility of the certain prospect ($U(W_0+W_A)$), or distance BF, is greater than the expected utility of the risky prospect, distance DF. The logic behind this result is that the marginal utility of the potential return to risk taking (W_H-W_A) is only

the amount CI, which is insufficient to compensate for the potential loss in utility from forsaking an equal monetary amount (W_A-W_L), or distance BH.

The individual's reservation price is given by W_R, since a certain prospect of W_R yields the same utility as the risky prospect (i.e. JK=DF). Equivalently, the vertical distance from A to J is equal to the vertical distance from J to C. Since $W_R < P_L W_L + P_H W_H$, this indicates that a risk-averse individual will be willing to pay some premium in order to avoid risk. This behavioural implication of risk aversion forms the basis of the market for insurance.

1.2 THE MARKET FOR INSURANCE

A risk-averse individual may attempt to convert an uncertain outcome into a certain one in a number of ways. Firstly, when considering the purchase of a risky asset, the individual may only be prepared to offer a price lower than the expected monetary value of the asset. Secondly, the individual may self-insure, which might involve incurring expenses in order to minimise the probability of the occurrence of an uncertain event and the extent of monetary and other loss upon its occurrence. The final method the risk-averse individual might adopt is the purchase of insurance from another party, discussed below.

1.2.1 The Demand for Insurance

Suppose this risk-averse individual faces a potential loss, L, with a probability, P_i, against which he wishes to insure. Assume the individual has initial wealth, W_o. In the absence of insurance, the expected wealth of the individual is W_o-P_iL (see Figure 2-2, overleaf), yielding expected utility of DF. The individual would be indifferent between this expected wealth and the certainty equivalent, W_R (since DF=HI). It follows that the individual would purchase full insurance cover against the loss provided the premium did not exceed IG.

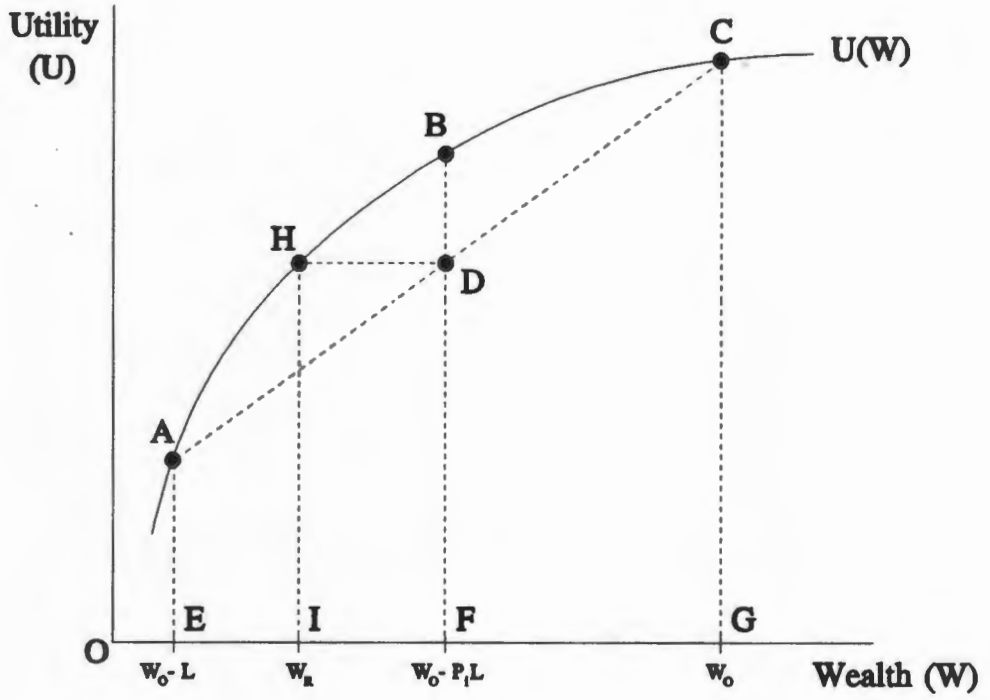

FIGURE 1-2
Risk Aversion and the Demand for Insurance

1.2.2 The Supply of Insurance

A common fallacy exists that suppliers of insurance, due to their mirror-like relationship with those demanding insurance, must be risk seekers. This fallacy is resolved by the mathematical theorem known as the law of large numbers, which holds that what may seem random or probabilistic to the individual becomes deterministic and predictable among large groups of individuals. The larger the number of policies an insurance company sells, the more dependable are its probability calculations and the less is the risk to which it is exposed. In the extreme, the attitudes of insurance companies towards risk are not of material interest.

The insurance premium charged by a competitive insurance company to the afore-mentioned individual would therefore be P_iL+T, where T covers the insurance company's transactions

costs and normal profits. Provided this premium is less than IG (or, equivalently $T < IF$), both parties will expect to benefit and there is scope for a viable insurance contract.

1.3 INFORMATION PROBLEMS IN INSURANCE

> "Economic theorists traditionally banish discussions of information to footnotes. Serious consideration of costs of communication, imperfect knowledge ..... would, it is believed, complicate without informing ..... [T]his comforting myth is false. Some of the most important conclusions of economic theory are not robust to considerations of imperfect information."
> (Rothschild and Stiglitz 1976, p. 629)

Analysis of the economics of information reveals potential problems for the insurer. The existence and efficiency of insurance markets depends on the expected loss, P_iL, fulfilling certain conditions. Thus far it has been assumed, albeit implicitly, that individuals can communicate information regarding their expected loss at negligible cost and/or that there is no scope for misrepresentation of this information as insurers are able to, and incur no costs in, establishing it for themselves.

It has been further assumed that the *ex-ante* (i.e., before the insurance contract is signed) and *ex-post* (i.e., after the insurance contract is signed) values of P_iL, the expected loss, are the same or that any change in either P_i or L can be costlessly monitored by the insurer, resulting in a renegotiation of the original contract. By dropping these restrictive assumptions the impact of informational asymmetries on insurance markets can be analysed.

Specifically, the following questions will be answered:

- What would happen if the costs to insurers of gathering information regarding individuals' expected losses, by means of monitoring their behaviour, were prohibitively high?
- What would happen if individuals were unable to communicate reliable information regarding their expected losses, without incurring excessive costs?

In order to do this, two problems pervasive in all insurance markets, namely moral hazard and adverse selection, will be introduced.

1.3.1 Moral Hazard

In the context of insurance, moral hazard may be defined as the actions of economic agents in maximising their own utility to the detriment of others, in situations where they do not bear the full costs of their actions as a result of uncertainty and incomplete contracts. The incompleteness of contracts may result from informational asymmetries and the costs of monitoring and contract enforcement.

More specifically, moral hazard will arise where the insured individual can influence the expected loss, P_iL (either by influencing the value of P_i or L, or both), at a cost lower than the expected gain, and do so without the insurer's knowledge.

As but one example, consider the purchase by an insured individual of preventative measures which will reduce the probability and/or cost upon occurrence of the insured event (e.g. fire extinguishers, smoke detectors, burglar alarms etc ....). From a social perspective, the efficient level of expenditure on preventative measures is where the marginal cost of such expenditure is equal to the marginal benefit in the form of a reduction in the expected loss, P_iL.

Where the loss is fully insured, however, and the insurer is unable to monitor the reduction in the expected loss with any degree of accuracy, any expenditure on preventative measures by the individual will only result in a negligible reduction in the insurance premium, defined P_iL+T. To the extent that such expenditure results in lower total claims against the insurer, the beneficiaries will be all insured individuals, rather than only those individuals responsible for the reduction in total claims. The result is that individuals face private incentives to underinvest in preventative activities. The problem of moral hazard thus results in inefficiency from a social perspective due to excessive purchase of insurance cover.

1.3.2 Adverse Selection

Adverse selection is an insurance market version of the "Lemons Principle" developed by George Akerlof (Akerlof 1970). It arises from the inability of insurers to distinguish between high-risk and low-risk applicants for insurance, and/or the inability of those applicants to furnish credible evidence regarding their risk status. Where the insurance company cannot distinguish high-risk from low-risk individuals, it must charge a premium based on average risk, namely

$$\frac{\sum_{i=1}^{n} P_i L}{n} + T$$

where n is the total number of individuals buying insurance.

Low-risk individuals pay more than they would otherwise have in the absence of informational asymmetries, while high-risk individuals pay less. The resultant premiums are therefore inefficient in the sense that a cross-subsidisation takes place between low-risk and high-risk individuals. The implication is that certain low-risk individuals may elect not to insure, thus raising the average risk of those insured and consequently the insurance premium, inducing further low-risk individuals to abandon ideas of insurance. The result is an insurance market where only those most likely to suffer the loss seek the benefits of insurance. In the extreme case there may exist markets in which no insurance is available. This possibility can be demonstrated by means of a simple example.

Assume that the set of n individuals seeking insurance is indexed by a risk parameter, P_i (where $i=1$ to n), distributed uniformly between O and 1. A value $P_i=O$ indicates that the individual has no chance of suffering the loss insured, while a value $P_i=1$ indicates certain loss. Further assume that, in the event of a loss being suffered by any of the insured, that loss will always be identical, of amount L. Due to informational asymmetry, the insurer can only observe the average risk of those insured, $\bar{P}$ (equal to ½), while individuals can determine the exact probability of their suffering the loss concerned.

Clearly, the average claim expected by the insurance company is $\bar{P}L = {}^{L}/_{2}$. Assuming that the insurer wishes to earn a return of 20 percent, the insurance premium will be ${}^{3}/_{5}$ L. Since those individuals purchasing insurance are assumed to be risk averse, one may surmise that insurance will be a worthwhile prospect for all individuals whose known probability of loss, $P_i \geq ½$[1]. Therefore, those purchasing insurance will be indexed by risk parameter, P_i, distributed uniformly between ½ and 1. This will give rise to a new value for $\bar{P}$ (= ¾). The resultant average claim expected by the insurance company will be ¾ L, inducing a revision of the premium. The new premium will be ${}^{9}/_{10}$ L, effectively excluding all but the most risky from the insurance market. A continuation of the analysis may preclude the existence of the insurance market altogether.

Thus, in the presence of adverse selection, insurance markets are inefficient and may even fail entirely. One possible solution that has been suggested in order to deal with the problem of adverse selection is to make insurance compulsory for all, thus preventing low-risk individuals from leaving a pooling equilibrium. However, the negative side-effects of such a policy may be substantial, in that it may encourage low-risk individuals to incur more risk in order to reap the full benefits of the premiums they are paying.

1.3.3 Techniques Adopted by Private Insurers to Counter Moral Hazard and Adverse Selection

Both moral hazard and adverse selection are essentially problems of information. If the insurer were somehow able to (i) determine the true risk status of individuals seeking insurance cover, and (ii) accurately and costlessly monitor any behavioural change after the purchase of insurance, then the problems of adverse selection and moral hazard would disappear. In the absence of such abilities, the insurer must rely on more conventional methods to reduce the extent and effect of informational asymmetries.

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[1] As $½ < {}^{3}/_{5}$, this is consistent with risk aversion. In fact, the example is equally applicable for all $P_i > 0$. Where $P_i = 0$ such individuals would have no incentive to purchase insurance.

Attempts to reduce the extent of informational asymmetries must rely on monitoring, which is not costless. An insurer will only monitor the behaviour of those purchasing insurance when the marginal benefit of such monitoring (in the form of reduced claims and/or more accurate premiums) exceeds its marginal cost. In many cases, the costs of monitoring with any degree of accuracy are prohibitively high. Where monitoring is impractical, the insurer must attempt to limit the effect of informational asymmetries by reducing the incentives of insured individuals to take advantage of such asymmetries.

In order to bring the interests of insured individuals more in line with those of the insurer, that insurer must attempt to internalise the externalities associated with the behaviour of those individuals. This would decrease the divergence between the marginal social benefit (cost) of their behaviour, and its marginal private benefit (cost). Such an objective could be achieved by means of a 'tax' on behaviour that results in increased expected insurance claims, while behaviour that results in lower expected claims could be subsidised.

The techniques adopted by private insurers to achieve these goals may be classified as follows: monitoring; risk-related premiums; deductibles and coinsurance; exclusion of benefits and cancellation provisions.

(i) Monitoring

The more information an insurance company can gather about an insured individual, the closer will be its estimate of P_iL to the actual value. Monitoring the behaviour of insured individuals is thus of clear value to the insurer in setting premiums. The insurer can also attempt to reduce the adverse selection bias by developing better methods of discriminating among those seeking insurance, such as medical testing for life insurance, so as to create more accurate risk classes.

(ii) Risk-related premiums

In setting premiums that are related to risk, the insurer is attempting to internalise the externalities associated with the *ex-post* behaviour of the insured individual. When insured

individuals engage in behaviour that increases the risk of the insured loss, their premiums will be raised. Conversely, behaviour that is expected to reduce the risk of the insured loss will be rewarded in the form of lower premiums. Examples are higher life insurance premiums for smokers, and lower fire insurance premiums for those who install fire extinguishers. Monitoring difficulties dictate that individuals will never face the full cost (reap the full benefit) of their actions in the form of higher (lower) premiums; yet risk-based premiums should go some way toward curbing the problem of moral hazard.

(iii) Deductibles and Coinsurance

Deductibles and coinsurance may be used to reinforce risk-related premiums in combating moral hazard. Under a deductible plan, individuals shoulder a fixed monetary amount of the loss (the so-called 'excess'), while under coinsurance, individuals shoulder a fixed percentage of the loss. Both methods are intended to minimise moral hazard by giving individuals the incentive to reduce the probability of the loss.

To continue an earlier example, individuals will incur expenditure on preventative measures up to the point where the marginal cost of such expenditure is equal to the marginal benefit to the individual, in the form of a lower probability of incurring the deductible, or a lower expected value of the coinsurance payment. Clearly, individuals may still underinvest in preventative measures, but to a lesser extent than before. Deductibles and coinsurance may also help to minimise the adverse selection problem. These devices are far less attractive to high-risk individuals, so that insured individuals' willingness to accept such provisions may act as a clear signal to the insurer as to their risk status.

(iv) Exclusion of benefits and Cancellation provisions

Insurers may protect themselves from extreme cases of adverse selection and moral hazard by means of the exclusion of benefits or cancellation provisions. For instance, individuals may be excluded from the benefits of insurance when losses arise from pre-existing conditions (life insurance policies sometimes contain a clause excluding cover during the first year of the policy). In addition, insurance may be cancelled if it is established that the loss

was deliberately incurred (fire insurance losses are not payable in the event that the insured individual committed arson).

1.4 AN INTRODUCTION TO DEPOSIT INSURANCE

1.4.1 General

Under a system of deposit insurance, certain of the liabilities of a financial institution (usually the smaller deposits of so-called 'unsophisticated' depositors) are, in the event of the insolvency and closure of that institution, insured against any losses incurred as a result of an excess in the value of those liabilities over the market value of the assets of that institution. Holders of such liabilities are reimbursed out of a deposit insurance fund, which is periodically supplemented by means of insurance premiums levied against insured financial institutions by the deposit insurer.

1.4.2 The Justification for Deposit Insurance

The most frequently quoted reason for the existence of a system of deposit insurance is the danger of contagious bank runs by ill-informed depositors (in the absence of deposit insurance) leading to defaults on the payments system and possible adverse effects for the macroeconomy as a whole. In addition, it has been suggested that deposit insurance will improve the informational efficiency of the financial sector of an economy. Finally, deposit insurance has been justified in terms of the need to protect the savings and transactions balances of small, informationally disadvantaged depositors. It is worthwhile to consider each of these arguments in more detail.

(i) Bank runs

While non-financial firms can be pressured into satisfactory price and product performance by the threat of losses and, ultimately, failure, there is a common belief that "banking is different", and consequently banks, particularly large ones, cannot be permitted to fail. This belief is frequently referred to as the "too large to fail" (TLTF) myth (Kaufman 1990).

Proponents of the TLTF doctrine suggest that the failure of a large bank would set off a "domino effect" that would drag into insolvency other financially sound banks and perhaps even non-financial institutions. Their reasoning is as follows: the failure of a large bank and (in the absence of deposit insurance) the consequent losses incurred by its depositors will lead to a lack of confidence in the banking system as a whole. Other depositors, acting on poor information, will (irrationally) withdraw deposits from their respective banks "to be on the safe side".

The resultant abnormally high deposit outflows will cause aggregate bank reserves to fall. Under a system of fractional reserve banking, this loss of reserves will trigger a multiple contraction affecting solvent and insolvent institutions alike, and result in a fall in the money supply. With all banks simultaneously attempting to meet these abnormal demands for currency, many will be forced to attempt to liquidate some of their earning assets, resulting in a flood of such assets on the market, "fire-sale" losses, and the increased likelihood that the banks' liquidity problems will degenerate into solvency problems. A rational run on an individual, insolvent bank will thus snowball into an irrational run on the banking system as a whole. This will cause defaults on the payments system, wreaking havoc in non-financial sectors and the aggregate macroeconomy. When viewed in such a light, bank failures do seem to be uniquely different from the failures of other organisations. Deposit insurance is thus justified in that it removes, or at least reduces, the incentives for bank runs and consequently stabilises the banking system.

Such a scenario, however, exaggerates the impact of a run on an insolvent institution for a number of reasons. The first, according to Kaufman (1990), is that the flight to currency will not be as dramatic as predicted by the proponents of TLTF. Certain banks may be perceived to be "safe" by depositors, with the result that they will shift their funds to those banks. Other, more sceptical depositors may be unwilling to redeposit directly, rather opting to purchase safe, non-bank securities such as government stock - a so-called "flight to quality". However, this merely begs the question: what do the sellers of the securities do with the proceeds? It is likely (since they sold the securities), that these sellers perceive certain banks to be safe, and the funds will be indirectly redeposited into the banking system. In the case of direct and indirect redeposits, the economic effect of bank runs is minimal -

reserves and deposits are redistributed within the banking system, but no loss occurs to the system as a whole. Certain banks experience liquidity strains, while others experience liquidity surpluses - no liquidity crisis occurs in the system as a whole, and there is no decline in the money supply.

Even in the event of a substantial flight to currency, the picture is not nearly as bleak as that suggested by the proponents of TLTF. A solvent bank will generally experience little difficulty in obtaining sufficient liquidity to meet abnormal deposit outflows. Liquidity can be obtained through the sale of liquid assets, such as government stock (if such assets are saleable), borrowing from liquid banks (if such banks exist), or the operation of a properly functioning lender of last resort. The function of the lender of last resort is to provide the market with liquidity in times of pressure by discounting the financial "paper" (bills and other related securities), presented to it. The role of the lender of last resort thus must be distinguished from that of "bailing out" insolvent institutions. In order to achieve this, the lender of last resort must be able to determine which institutions are suffering a genuine liquidity crisis, and which are, in fact, insolvent.

This problem is resolved by the market - the central bank (as lender of last resort), can remain ignorant of any single institution. The reason is as follows: the greater the liquidity required, the "poorer" the quality of the paper that will be discounted and thus the higher the cost of that liquidity (i.e. the rate of interest charged). A poorly-managed institution will be carrying poor-quality paper and, in the extreme case, the cost of liquidity will be prohibitively high. That institution's inability to continue operation will, then, be *of its own making*.

Depositors, observing solvent banks' ability to meet abnormal demands for liquidity, will regain confidence in the banking system. Provided the lender of last resort performs its function properly, the danger of irrational runs on the banking system as a whole will be averted. Any runs that do occur will be rational and non-contagious, based on information that the institution concerned has (or is about to) become insolvent. The threat of such runs is a strong deterrent to excessive risk taking by banks and is, in fact, more likely to strengthen than to weaken the long-run stability of the banking sector.

Thus it seems that deposit insurance is unnecessary in protecting the banking system (and indeed the entire macroeconomy) from the "perils" of destabilising bank runs. In fact, it is arguable that, through its all-encompassing "blanket-cover", deposit insurance reduces the threat of rational bank runs and may well have a negative effect on the stability of the financial system. In the following chapter, it will even be suggested that deposit insurance, if incorrectly managed, may lead to runs *towards* "bad" banks.

There is, however, one important sense in which "banking is different". The misuse of resources by financial institutions, which may well result from the absence of any threat of a rational bank run, has more severe efficiency consequences than the misuse of resources by other non-financial institutions. Financial institutions have the scope not only for misusing the resources they employ directly, but also for distorting the use of resources by all institutions in the economy. Where, from the point of view of allocative efficiency, it is important that an inefficient non-financial institution fail, it is doubly important for a financial institution.

(ii) Informational Efficiency

Proponents of a system of deposit insurance argue that it is necessary in order to improve the informational efficiency of the financial sector of an economy. Due to economies of scale, the information gathering and assimilation costs to a centralised agency are likely to be considerably lower than the total of such costs for all depositors. In addition, certain smaller, unsophisticated depositors may lack the skill and the resources to monitor effectively the condition of their financial institutions. While this may be adequate justification for the existence of an information gathering service, it does not explain the need for a deposit insurer.

(iii) Depositor Protection

The final argument (and that which is most resistant to scrutiny) in favour of deposit insurance is that, from a social standpoint, unsophisticated depositors should have a dependable sanctuary for their savings and transactions balances. It is generally accepted that

these individuals should not be subjected to a rule of *caveat depositor* and be forced to select an institution the asset portfolio of which they approve, and in which they have confidence. The reasons are as follows: firstly, such a rule assumes a degree of expertise in financial matters lacking in most small depositors. The cost of acquiring such expertise would, in all likelihood, be prohibitively high. Secondly, these depositors often have a significant proportion of their wealth invested in savings and transactions balances, and lack the resources to absorb unpredictable losses.

It is argued that deposit insurance will solve these problems by securing the value of these depositors' investments. As mentioned earlier, however, deposit insurance may also have a negative impact on the stability of the financial system by reducing the threat of rational bank runs. Clearly, any system of deposit insurance will involve, at least to some extent, a trade-off between these two factors. Mechanisms which may be used to attempt to achieve an optimum balance will be analysed in Chapter 4.

1.4.3 Deposit Insurance : The Realm of Government

> "..... only the sovereign enforcement and taxing power of government is likely to provide the necessary assurance for most ..... depositors."
> (White 1989, p.26)

> "..... potential private insurers cannot as reliably claim implicit backing from the U.S. Treasury for their explicit and implicit financial obligations."
> (Kane 1989, p.34)

Both in the literature, and in practice, deposit insurance has always been considered to fall within the realm of government. The sole justification for the governmental provision of deposit insurance is the government's ability to levy tax.

While this argument is a tenuous one, for the moment, following convention, it shall be assumed that deposit insurance is indeed provided by the government. In the final chapter, however, the need for governmental involvement in the provision of deposit insurance will be scrutinised.

CHAPTER 2

GOVERNMENT DEPOSIT INSURANCE AND THE EROSION OF MARKET DISCIPLINE: "THE RECIPE FOR DISASTER"

2.1 A MODEL OF RISK-SHIFTING

The diverse interests of the different parties participating in the operation of the modern business organisation is widely acknowledged (Jensen and Meckling 1976; Fama 1980). According to Coase (1937), firms are viewed as a nexus for a set of contracts between various economic agents. Hence, management and other suppliers of productive inputs, as well as holders of financial claims (owners and creditors), are seen as stakeholders whose claims against the firm are determined by means of either explicit or implicit contractual arrangements.

A characteristic of most large business organisations is the separation of risk-bearing and decision-making. Management is responsible for co-ordinating activities and for the execution of contracts with suppliers of productive inputs, taking risks in the process, the costs of which are borne by the owners and other holders of financial claims. As managers seldom hold a significant proportion of the equity of the firm, they rarely reap the full benefits of wise decisions, nor bear the full impact of poor ones. Residual profits generally accrue to the owners. Thus it becomes apparent that the interests of management and of shareholders may not necessarily always coincide (Jensen and Meckling 1976).

A second, and for the purposes of this analysis, more relevant conflict of interest arises from the limited liability feature prevalent in modern corporations. Shareholders are not liable for any obligations beyond their initial investment in the enterprise. This results in added risk-taking being consistent with the interest of shareholders, particularly when shareholder equity is dissipated. As will become apparent, this may place the interest of shareholders directly at odds with the interest of creditors.

These observations provide the framework for the construction of a model of risk-shifting behaviour, which is extremely relevant to the analysis of government-sponsored deposit insurance. As per any standard corporate finance text (e.g. Brealey & Myers 1988), it is assumed that owners and creditors are fully diversified and seek to maximise the expected value of their respective investments in the firm. It is further assumed that managers operate in a world in which there is an exogenous level of uncertainty about which they can do

nothing. They can, however, make choices between alternative investment projects, which affect both the probability of insolvency and the distribution of returns to both owners and creditors.

The behaviour of managers with regard to investment choice will be considered under two different assumptions concerning their objective function. In the first case, managers exactly reflect the interests of owners in attempting to maximise expected returns. In the second case, managers no longer reflect owners' interests, but are instead seen as being overinvested in the firm, concerned only with minimising the probability of its liquidation. (Here the analysis is simplified by the assumption that bankruptcy leads to liquidation which results in the replacement of management.) In light of these assumptions, certain predictions are made as to the circumstances under which the investment decisions of management will, or will not, coincide with the interest of creditors.

2.1.1 Managers Mirror the Interest of Owners

In order to keep the analysis simple and the focus of attention uncluttered, suppose managers must choose between two alternative investment opportunities, A and B. These projects have distributions $f_A(\pi)$ and $f_B(\pi)$, where π is the level of economic profit or loss. Each project requires the same initial investment, is financed in the same manner, and has the same mean, $\overline{\pi}$; however, project B is more risky than project A. Risk refers to the probability distribution associated with the outcome of the investment options. Project B, having a greater variance, can therefore be thought of as having "more weight in its tails", as depicted in Figure 2-1 (overleaf). At $\hat{\pi}$, all shareholder equity is dissipated. It is assumed that any level of income below $\hat{\pi}$ implies that the firm will default on its loans and be forced to liquidate.

When the interests of managers and owners coincide, the utility function of managers can be defined as follows: $U=U(\overline{\pi}^*)$, where $\overline{\pi}^*$ is the mean of all $\pi > \hat{\pi}$. From the owners' point of view, limited liability implies a truncation of the distributions at $\hat{\pi}$. All levels of $\pi < \hat{\pi}$ are perceived by owners as equivalent as they all imply a complete dissipation of equity. Consequently, given any two projects with the same mean in π-space, managers, acting as

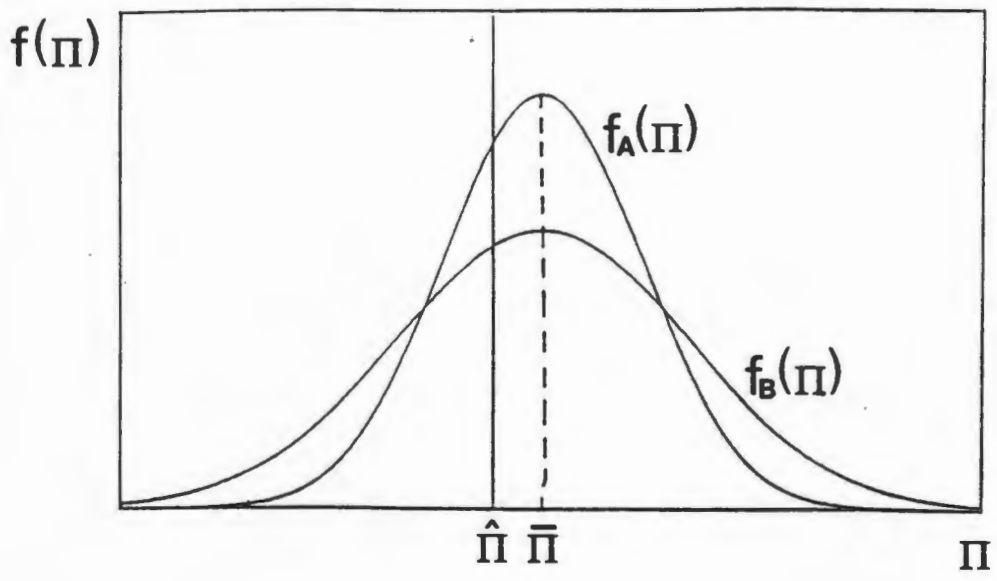

FIGURE 2-1
Investment Choice - Managers Assumed Perfect Agents of Owners

perfect agents of owners, will always select the more risky alternative, in this case project B.

Creditors, however, are liable for the costs of failure. In the event of liquidation, creditors are assumed to receive a *pro rata* share of the market value of the firms assets. Given solvency, creditors will be indifferent to the level of profits (except perhaps to the extent that profit levels may influence the probability of future solvency). However, assuming that the magnitude of failure determines the liquidation value of the firm's assets, creditors will prefer small failures to large ones. Clearly, project A will be preferable to creditors as the probability of failure is less, and, in the event of failure, the extent of the losses should be less.

It is apparent, therefore, that managers who act strictly in their shareholders' interests will favour risky projects over safe ones, benefitting by undertaking actions that shift risks onto creditors. The closer a firm to insolvency, the lower the value of the owners' interests, and thus the more pronounced this tendency will become. A situation of "heads we win, tails

the creditors lose" may even lead to managers approving risky strategies with negative net present values.

2.1.2 Managers Overinvested in the Firm

Managers may not view corporate insolvency with the same equanimity as the diversified shareholder; this is because managers' investment portfolios are generally not fully diversified. Rather, they can be considered as being overinvested in the firm at which they are employed. The reasons for this are numerous. According to Jensen and Meckling (1976), the value of managers' human capital depends on the success or failure of their firm. Managers' career prospects may suffer irreparable damage if those managers are labelled as the team that piloted a firm into financial crisis. In addition to this loss in the value of their human capital, upon liquidation (and the assumed replacement of management), incumbent managers will incur, among others, the following costs: lost wages while searching for another position; lower wages in the new position (essentially the result of the fall in value of their human capital); and lost non-wage benefits of the old position, including executive compensation schemes, power, prestige and self-respect.

Accordingly, it is likely that managers, instead of having a conventional utility function defined over the mean and variance of returns, may experience a discontinuous loss in utility upon liquidation. As an alternative, a managerial utility function is proposed in which risk is the probability of insolvency and liquidation. Managers have an aversion to insolvency that is not shared by fully diversified expected-value-maximising shareholders, and as a result wish to minimise the probability of its occurrence. Such a formulation of managerial utility reconciles two opposing schools of thought on managerial behaviour in the face of insolvency: that the threat of insolvency according to some generates caution, and the counter-argument that it produces gambling behaviour (Machlup 1967; Brealey and Myers 1988).

Specifically, assume that managers must again choose between investment opportunities A and B. The probability of the firm's survival can be defined as follows:

$$P_s^i = \int_{\hat{\pi}}^{\infty} f_i(\pi) d\pi$$

where i=A,B. Utility maximisation for managers can be represented as:

$$\max U = \max_i (P_s^i)$$

Consider management behaviour in two cases: expected solvency ($\bar{\pi} > \hat{\pi}$), and expected insolvency ($\bar{\pi} < \hat{\pi}$).

The first case is illustrated in Figure 2-2. P_s^i is maximised by choosing the less risky alternative, project A. The reason for this is that:

$$\int_{\hat{\pi}}^{\infty} f_A(\pi) d\pi > \int_{\hat{\pi}}^{\infty} f_B(\pi) d\pi$$

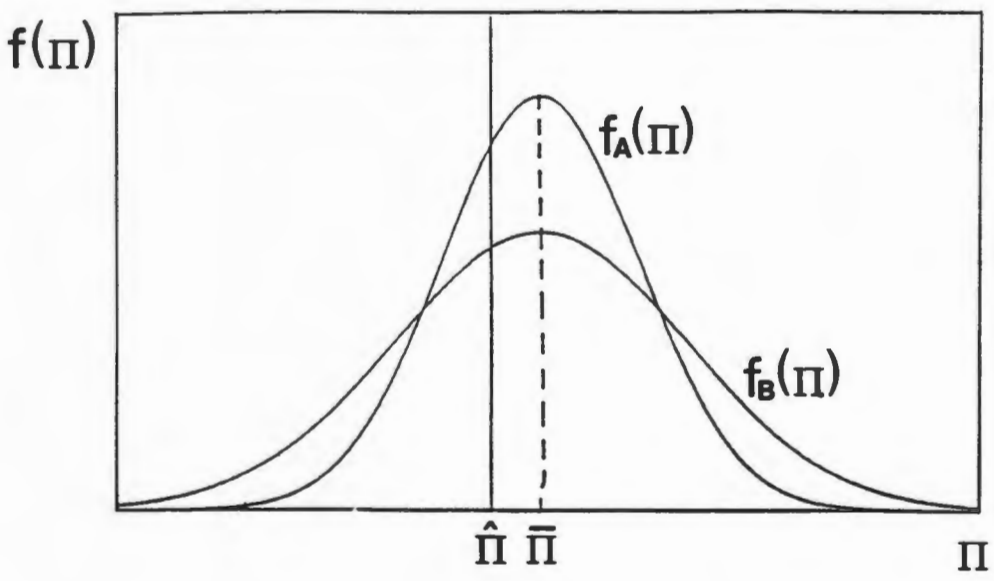

FIGURE 2-2
Investment Choice Under Expected Solvency
- Managers Assumed Overinvested in the Firm

We can deduce that managers will avoid risky projects when choosing among options that are expected to produce positive economic profits. This is in contrast with the second case, depicted in Figure 2-3. Clearly the riskier project, project B, will maximise the chance of staying in business, since:

$$\int_{\pi^*}^{\infty} f_B(\pi)d\pi > \int_{\pi^*}^{\infty} f_A(\pi)d\pi$$

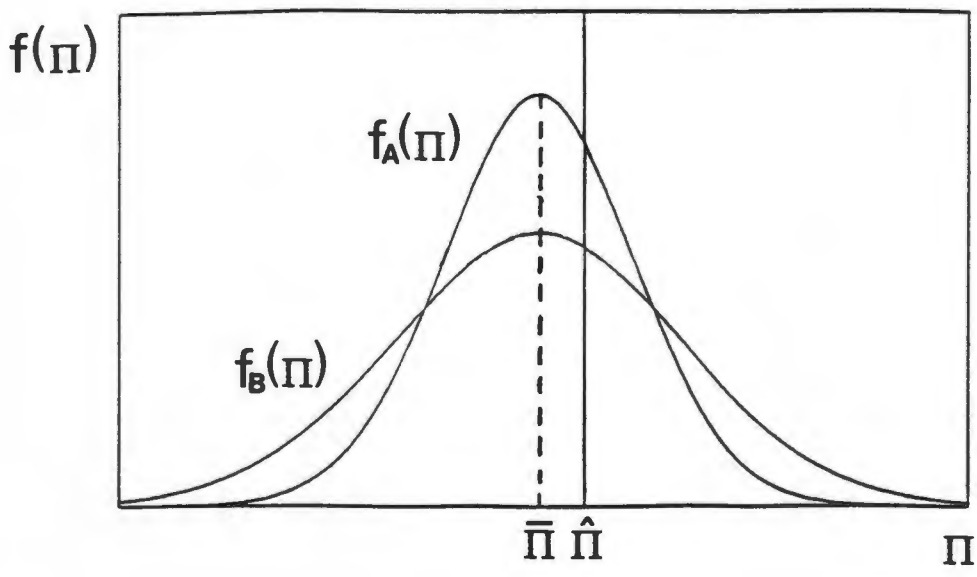

FIGURE 2-3
Investment Choice Under Expected Insolvency
- Managers Assumed Overinvested in the Firm

Thus we can see that the same manager may appear either risk-seeking or risk-avoiding. Attitude towards risk will depend on whether the manager believes the firm will remain solvent. When the options available have positive expected returns, the desire to avoid liquidation will help to counteract the tendency toward risk-shifting as a result of limited liability, pushing the manager toward lower-variance projects with consequentially lower expected costs to creditors. When all alternatives are losing propositions, however, the same manager, in a gamble for resurrection, may select the riskiest projects with the highest expected costs to creditors.

In summary, when managers mirror the interests of owners, they will tend to make investment decisions that shift risk onto creditors; moreover, this behaviour is intensified as the firm approaches insolvency. Yet, the threat of being replaced in the event of insolvency may cause managers to moderate this behaviour and thus more closely reflect the interests of creditors. Impending insolvency may, however, again result in managers shifting risk onto creditors in a desperate attempt to rescue the firm.

2.2 MARKET DISCIPLINE AND THE CONTROL OF RISK-SHIFTING BEHAVIOUR

Markets play an important role in reconciling the conflicting interests of the various parties to a firm. The threat of being voted from power by dissatisfied shareholders or of a corporate takeover bid following depressed share prices will induce managers, at least to some extent, to reflect the interests of owners and attempt to maximise the expected value of their investments in the firm.

Of more consequence to this analysis are the mechanisms adopted by creditors in order to limit the extent of risk-shifting behaviour by management. Private lending agreements reflect a realisation on the part of creditors that managers (as agents of the owners), can potentially benefit by undertaking actions that shift risk onto the creditors after the loan has been made. To the extent that this behaviour can be predicted in advance, creditors can charge a premium in the form of a higher rate of interest on the funds that have been loaned. Pricing alone, however, cannot deal with the inherent problem of asymmetric information. As a result, the extension of credit is frequently accompanied by legally binding covenants limiting the actions of the borrowing firm. In addition, such covenants may, *inter alia,* require specific disclosures to be made by the borrower to the lender, and may allow for oversight of the borrower's business by the lender. The most extreme means available to creditors in order to enforce their interests are legal bankruptcy proceedings. In light of the aggravated incentive problems experienced by managers when a firm is insolvent or approaches insolvency, creditors typically seek to take control of a firm away from its management at the first indication thereof.

Finally, the devastating effect that bankruptcy has on the reputation and career prospects of managers may well, in certain cases, limit their tendency towards risk-shifting practices.

2.3 THE EFFECTS OF DEPOSIT INSURANCE

In the absence of deposit insurance, depositors (as creditors of a financial institution), would be expected to withdraw their funds upon discovering risky or ill-advised investment behaviour on the part of the institution's management. Such a reaction would be analogous to a partial liquidation in order to deprive management of control over their assets.

In the presence of a system of governmental deposit insurance, however, the incentives of depositors to exercise any disciplinary measures are eroded. Since the value of their deposits is guaranteed, depositors will no longer find monitoring and discipline of the actions of managers necessary or worthwhile. Instead, they will have every incentive merely to gravitate towards those financial institutions offering the highest returns, regardless of the riskiness of their asset portfolios or their probability of default. This absence of discipline from depositors may induce managers and owners to play a new risk-shifting game, namely "heads we win, tails the governmental deposit insurer loses" (Barth *et al.* 1991). Again, this behaviour will become more pronounced as the financial institution approaches insolvency.

In order to afford protection to its insurance fund, the deposit insurer must attempt to ensure that both owners and managers have a substantial interest in the continued solvency of the firm. This can be achieved by making certain that all financial institutions with insured deposits remain well capitalised at all times. The greater the net worth of the institution, the greater the insulation provided by the owners' resources before any claims are made against the insurance fund. In addition, a larger net worth will reduce the incentives towards excessive risk taking. Failing that, it is imperative that the deposit insurer act expeditiously in the closing down and removal of management from control of an institution at the first sign of insolvency. In this way, managers will see insolvency as a potentially ruinous event to be avoided wherever possible, while owners will not be granted the opportunity to exercise their accelerated risk-shifting tendencies.

The existence of deposit insurance thus shifts the onus of discipline from depositors to a governmental deposit insurer responsible for the supervision, monitoring and possible closure of all financial institutions managing insured deposits. The question now begging is: will a government body be able (or even have the incentives) to carry out these duties effectively?

2.4 INCENTIVE PROBLEMS IN GOVERNMENT REGULATION

One essential ingredient for the successful provision of deposit insurance is a precommitment to the prompt closure of insolvent institutions. In the case of unregulated business organisations, this precommitment is manifested in legal bankruptcy proceedings, initiated by uninsured creditors and conducted by an independent judiciary. In the presence of deposit insurance, the role of creditor is effectively transferred from the depositors to the governmental deposit insurer.

It is very likely, however, for reasons discussed below, that the incentives of a governmental deposit insurer may differ substantially from those of uninsured creditors, resulting in a deterioration of the precommitment to early closure. In this event, the policies opted for in dealing with insolvent financial institutions may be in sharp contrast to the usual restrictions on management imposed in the course of legal bankruptcy proceedings for non-financial firms.

In performing its tasks of monitoring, supervising and possibly closing financial institutions, a governmental deposit insurance agency will have a certain amount of discretion in the setting and interpreting of policy objectives and in its rulemaking. These discretionary powers may result in a politicisation of the deposit insurer's decision-making process, resulting in an unwillingness on the part of the deposit insurer to adopt a stance that might place it in conflict with politically valuable parties (whether they be uninsured creditors, managers or owners of insolvent financial institutions).

Another danger in granting the deposit insurer some degree of discretion is the possibility of negative-sum rent-seeking behaviour. Frequently, the decisions of the deposit insurer will

have large redistributional consequences causing interested market participants to expend significant economic resources in attempting to influence those decisions one way or another.

Employees of government departments have strong incentives to impress their departmental overseers in order to increase the value of their future career prospects. As the closure of an insolvent financial institution may be construed as an embarrassing admission of inadequate monitoring and supervision by the deposit insurer officials responsible for that organisation, those officials may be tempted to postpone action in the hope that the institution may somehow resurrect itself, or that they themselves may be transferred to another position, thus escaping responsibility for the insolvency.

Evidently then, the dual problems of regulatory capture as a result of rent-seeking and the politicisation of the decision-making process, and the tendency of government employees to conceal any problems that might damage their future prospects, may compromise the ability of a governmental deposit insurer to limit risk-taking behaviour. In the long-run, this will lead to greater claims being made against the insurance fund, and, in the extreme, may result in the bankruptcy of the fund itself. If a significant deficit in the insurance fund were to arise, the deposit insurer, in order to fulfil its commitment to insured depositors, would, in some way or another, have to impose some costs on taxpayers. Clearly this would be politically unpopular, and substantial incentives therefore exist for a governmental deposit insurer to adopt stalling techniques as a means of avoiding acknowledgement of this state of affairs. One such technique might be a policy of forbearance for insolvent institutions. Ultimately, however, this may effect even greater costs for taxpayers.

2.5 THE RECIPE FOR DISASTER

It is thus apparent that, under a system of governmental deposit insurance, excessive risk-taking on the part of insolvent financial institutions may be tolerated as few incentives exist to take the steps necessary to harness it. All elements of market discipline are removed from financial markets, with depositors insulated from loss by insurance, while, from the deposit insurer's perspective, the decision to let an insolvent institution fail has its roots entrenched more in politics than in economics. Forbearance in the event of insolvency may even result

in managers viewing that eventuality without trepidation. Risk-shifting will still take place, with the risk effectively being borne by taxpayers.

From the point of view of the owners of a financial institution, deposit insurance can be thought of as a put option *vis-a-vis* the deposit insurer. If the institution deteriorates into insolvency, then the owners can place it with the deposit insurer and incur no further costs to themselves. According to White (1990), the value of this put option to the owners of the financial institution, and the cost of such an option to the deposit insurer (and possibly taxpayers), will increase with:

(i) increases in the variance of returns (risk) of the institution's asset portfolio;

(ii) decreases in the institution's net worth (the value of the put will reach a maximum at the point of zero net worth);

(iii) decreases in the deposit insurer's willingness to monitor and control excessive risk-taking by the institution; and

(iv) decreases in the deposit insurer's willingness to remove managers from control and owners from their ownership rights in the event of insolvency.

When one views deposit insurance in this light, one can easily imagine a situation arising where managers of undercapitalised (or even insolvent) financial institutions offer high rates of return on deposits which they use to finance high-risk ventures in the hope that, in the remote chance that those investments are successful, they may secure (at least temporarily), the future of their respective institutions. If, however, the projects fail, consequent losses will be borne by the deposit insurer and possibly taxpayers. This, of course, is a typical example of the moral hazard problem experienced by private insurance organisations as mentioned in the first chapter.

Depositors, meanwhile, secure in the knowledge that their investment is guaranteed, will merely place their funds with that institution which is offering the highest returns. In this

way, deposit insurance may well draw customers away from sound financial institutions offering lower, but "correct", returns (given the market conditions pertaining at the time), towards the more liberal promises of less sound banks. In order to compete, managers of these sound financial institutions will themselves be forced into adopting an investment strategy of high-risk, high-return. The ultimate result of this will be an overallocation of resources into high-risk assets and a proliferation of unsound institutions, increasing the expected value of future claims against the insurance fund. Thus a governmental deposit insurer will, in much the same way as the private insurer, be subject to the problem of adverse selection.

A system of governmental deposit insurance is thus a potential "recipe for disaster". One can easily picture a financial market, where investors are insured by the government, deteriorating into a self-perpetuating spiral of regulatory forbearance accompanied by excessive risk-taking, culminating in the bankruptcy of the insurance fund and substantial losses to taxpayers. This is nowhere more evident than in the collapse of the American Savings and Loan Industry, documented in the following chapter.

CHAPTER 3

THE DISASTER MANIFESTED:

THE COLLAPSE OF THE AMERICAN SAVINGS AND LOAN INDUSTRY

"..... as to guaranteeing bank deposits ..... The general underlying thought behind the use of the word 'guarantee' with respect to bank deposits is that you guarantee bad banks as well as good banks. The minute the Government starts to do that the Government runs into a probable loss..... We do not wish to make the United States Government liable for the mistakes and errors of individual banks, and put a premium on unsound banking in the future."
(Franklin D. Roosevelt, March 8, 1933)[1]

3.1 THE ORIGINS OF FEDERAL DEPOSIT INSURANCE

In the wake of the failures of thousands of Savings and Loan institutions (S&Ls) over the 1929-1933 period, the United States Congress for the first time established a comprehensive system of regulation and insurance for S&Ls. The Federal Home Loan Bank Act of 1932, creating the twelve Federal Home Loan Banks and the Federal Home Loan Bank Board (FHLBB) as their supervisory agency, was passed in order to coordinate the lending of low-cost funds to S&Ls so as to facilitate their provision of low-cost housing finance. With the passage of the Home Owners' Loan Act of 1933, the FHLBB was given extensive chartering and regulatory powers over S&Ls. Finally, the year after federal deposit insurance had been introduced for commercial banks, the National Housing Act of 1934 created the Federal Savings and Loan Insurance Corporation (FSLIC), a deposit insurance fund for S&Ls, which was placed under the auspices of the FHLBB.

The FHLBB was empowered to levy an annual flat-rate insurance premium of ¼ of one percent of total deposits of each insured S&L, with a view to establishing an insurance fund equal to five percent of all insured liabilities within 20 years. Deposits were initially insured up to a maximum of $5 000 and the FSLIC was expected to accumulate sufficient reserves to compensate fully all insured deposits under any foreseeable circumstances. During times of stress, a further emergency assessment of ¼ of one percent was authorised.

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[1] The Public Papers and Addresses of Franklin D. Roosevelt, New York, Random House, 1938, p.37, cited by Ely and Vanderhoff 1991a, p.25.

The objective of the United States Government was to use the S&L industry as a means of satisfying the need for low-cost housing finance. S&Ls were expected to achieve this by making long-term, fixed-rate home mortgage loans, holding them in their portfolios, and financing them primarily by means of short-term passbook savings and deposits, insured by the FSLIC.

3.2 PUBLIC POLICY FOUNDATIONS OF THE S&L CRISIS

3.2.1 Federal Deposit Insurance Actuarially Unsound

Within a year of the establishment of the FSLIC, both the flat-rate premium and the emergency assessment were halved to $^1/_8$ of one percent of total deposits. This action was based on the pretext that enhanced regulation would hold the future losses of insured S&Ls well below historical averages. Yet, as Barth *et al.* (1991) point out, there was some awareness at the time that the lower rates might cause future funding problems for the insurance fund. As early as 1935, Leo T. Crowley, the first chairman of the Federal Deposit Insurance Corporation (FDIC), the commercial bank insurance fund, admitted as much in testimony before the House Committee on Banking and Currency.

Despite this, over the ensuing years, statutory deposit insurance premiums were cut further, as coverage was expanded. In 1950, the FSLIC was granted the right to borrow from the U.S. Treasury, while insurance premiums were reduced to $^1/_{12}$ of one percent. In 1966, the insurance coverage of S&L deposits was raised to $15 000, and again to $20 000 in 1969, $40 000 in 1974 and $100 000 in 1980.

The rapid postwar growth in deposits, combined with lower premiums, resulted in the FSLIC's insurance fund never exceeding two percent of insured deposits, thus falling woefully short of the five percent target mandated by the National Housing Act. Clearly, the structure of the federal deposit insurance system made the insolvency of the FSLIC at best a very real possibility, and at worst inevitable. Yet, as Barth *et al.* (1991) indicate, the question as to what should be done during periods in which abnormal losses swamped the insurance fund, remained unanswered.

3.2.2 The Dangerous Practice of Maturity Mismatching

Federal policy after 1933, and particularly the ban on adjustable rate mortgages (ARMs), transformed the nation's S&Ls into highly unsound financial institutions. While the long-term (20-year or more) fixed-rate mortgage may have been an admirable policy goal, the S&L industry, which has historically funded itself by means of short-term deposits, was the incorrect candidate. The practice of borrowing short to lend long exposed S&Ls, in times of rising short-term interest rates, to an increasing cost of funds with no corresponding increase in income. An actuarially sound deposit insurance system would have penalised the adoption of such interest rate risk by charging higher insurance premiums, thereby forcing institutions to match more closely the maturities of their assets and liabilities. In the absence of ARMs, fixed-rate mortgage loans would have been held by life insurance companies, pension funds and other long-term components of the capital market.

3.2.3 Regulation Q

Stable interest rates largely concealed the maturity mismatching practices within the S&L industry until the mid-1960s. However, in 1966 an interest rate spike exposed the inherent dangers: S&Ls found the interest costs on their short-term deposits rising, while the income from their portfolios of long-term, fixed-rate mortgages (made years previously at lower rates) remained unchanged.

The reaction of Congress was unfortunate. Instead of lifting the ban on ARMs, Congress, in September 1966, enacted the Interest Rate Control Act, extending Regulation Q to S&Ls. Regulation Q, which placed a regulatory interest rate ceiling on deposits, had previously applied only to commercial banks. (To limit the alternatives available to depositors, and thus reinforce this regulatory stopgap, the Treasury Department increased the minimum denomination of Treasury bills from $1 000 to $10 000.)

Had Regulation Q's interest rate controls not been extended to S&Ls, the inherently unsound financial structure of the S&L industry would have become an economic and political issue by the mid-1970s, as short-term interest rates continued to rise. Effectively, Regulation Q

perpetuated the operation of an unsound S&L industry, substantially increasing the cost of resolving the maturity mismatching problem.

3.3 THE 1979 - 1981 INTEREST RATE EXPLOSION

Disaster struck the S&L industry when, in October 1979, Paul Volcker, then chairman of the Federal Reserve Board, in response to rising oil prices and inflationary expectations, overnight became a monetarist. The devastating effect of the consequent surge in interest rates on the market value of fixed-rate mortgages owned by S&Ls was, for a while, largely neutralised by the willingness of many depositors to maintain deposits at S&Ls at below-market interest rates. In the first half of 1981, for instance, S&L depositors were, on average, accepting yields almost five percent below market rates (Ely 1990). By late 1981, however, regulatory ceilings on deposit interest rates could no longer solve the interest rate problems being suffered by S&Ls, since depositors were now faced with an attractive alternative - money market mutual funds. The fundamental flaw in the design of the savings and loan industry was finally and unequivocally exposed.

Crippled by sharply higher funding costs, at least 85 percent of all S&Ls lost money in 1981, the aggregate net operating loss for the industry being $7.1 billion. The slide continued into 1982 as short-term interest rates remained high and aggregate net operating losses almost topped $9 billion (Barth *et al.* 1991). The effect on the capital of the S&L industry was more dramatic still. Tangible capital (at historical cost) declined to 0,6 percent of assets in 1982 from 3,9 percent in 1981, while on a market value basis, the capital-to-asset ratio was actually negative, as the Chairman of the FHLBB, Richard Pratt, later acknowledged:

> "By 1982, the real capital positions of all [S&L] institutions had been completely eroded, and virtually all [S&L] institutions had large negative net worths when their assets and liabilities were valued at actual market rates."
> (Richard T. Pratt, Chairman of the FHLBB, August 3, 1988)[2]

[2]Testimony Before the Committee on Banking, Housing, and Urban Affairs, U.S. Senate, August 3, 1988, cited by Barth *et al.* (1991), p.26.

In fact, according to Ely and Vanderhoff (1991a), by mid-1982 the market value of FSLIC-insured S&Ls was negative to the sum of approximately $100 billion. This can be seen in Figure 3-1.

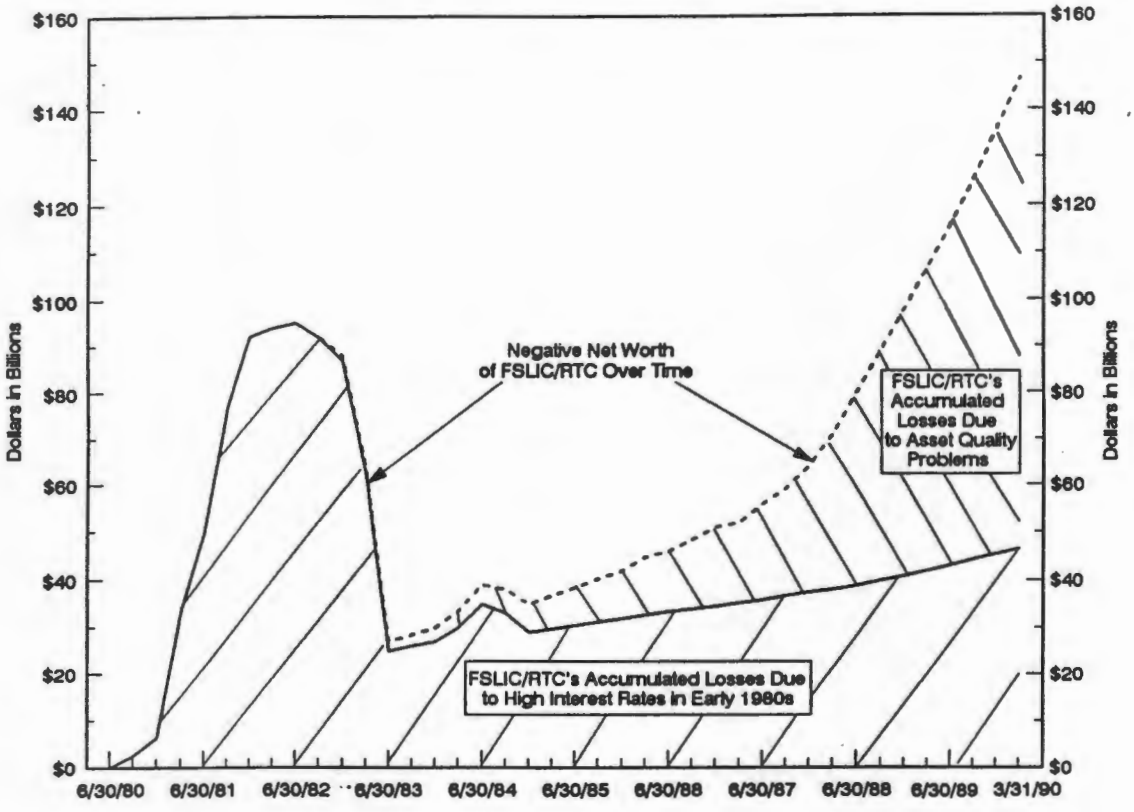

FIGURE 3-1

FSLIC/RTC's Accumulation of Losses, 1980-1990

Source: Ely and Vanderhoff (1991a)

As interest rates began to decline again, reaching a four and one-half year low by mid-1983, the market value of mortgages held by S&Ls climbed as their cost of funds fell, and many S&Ls were restored to solvency on a market value basis. However, the 1979 - 1981 interest rate spike had permanently crippled a large number of S&Ls, particularly those which had sold their mortgages at a loss when interest rates were at their peak (encouraged, perversely, by FHLBB-authorised liberal accounting policies, discussed below). The cost to the FSLIC in 1983 of disposing of these institutions would, according to Ely (1990), have been approximately $25 billion (see Figure 3-1), an amount equal to ten percent of their total liabilities.

Industry officials, however, reticent to make the FSLIC's insolvency explicit and admit to the need for a taxpayer bailout (for exactly the reasons discussed in Chapter Two), preferred to gamble on the S&L industry's self-resurrection. In the words of Edward Kane:

> "For more than a decade, federal officials refused to acknowledge that the [S&L crisis] had compromised the integrity of the supporting deposit insurance fund. Instead of promptly shoring up the finances of this fund, officials used accounting smoke and mirrors to cover up the fund's secularly increasing capital shortage. This prolonged refusal to face up to the magnitude of the underfunding imposed enormous costs on society as a whole."
> (Kane 1989, p.31)

3.4 THE BUNGLED DEREGULATION OF THE S&L INDUSTRY

The first attempts to deregulate the S&L industry were contained in the Depository Institutions Deregulation and Monetary Control Act (DIDMCA) of 1980. As well as phasing out Regulation Q and raising the maximum size of an insured deposit to $100 000, DIDMCA authorised federally chartered S&Ls to make other types of consumer loans, commercial real estate loans, commercial loans and even some direct equity investments (White 1990).

Lending and investment authority was expanded further by the Garn-St Germain Act of 1982, the motivation behind these moves being to allow S&Ls to diversify their asset portfolios and thus reduce their dependence on mortgage lending. Although the FHLBB had by this time authorised ARMs, this authorisation was not retroactive, with the result that many S&Ls were stuck with embedded losses in their existing portfolios. Congress was hoping that wider asset powers would enable insolvent S&Ls to generate sufficient earnings to offset the losses incurred in funding low interest rate mortgages with high cost deposits, and restore themselves to solvency, thus averting the need for any taxpayer bailout.

Many observers have claimed that the above-mentioned moves toward deregulation were largely responsible for the extent of the S&L crisis. While this may be true, it is not for the

reasons generally cited. DIDMCA and the Garn-St Germain Act did not rescind justifiable regulation, but rather removed restrictions that should never have existed in the first instance. Unfortunately their timing was poor - initiating deregulation during an interest rate crisis almost guaranteed that deregulation would fail, since, according to Ely and Vanderhoff (1991a), Congress could not instantly eradicate the "regulatory rot" that had been growing in S&Ls for years.

A successful deregulation of the S&L industry would have required a comprehensive restructuring of the federal deposit insurance system. Flat-rate deposit insurance could not accommodate in an actuarially sound manner the increased diversity and risk-taking opportunities afforded S&Ls by deregulation. Thus the entire burden of curtailing risk and imposing discipline, in an environment where thousands of institutions were reporting large losses and experiencing severe capital depletion, fell upon the federal insurer. This task could only have been achieved through strict maintenance of capital standards and the immediate closure of insolvent institutions. Unfortunately, the FHLBB lacked both the incentives and the funding to impose sufficient discipline and effectively curtail risk.

3.5 POLICIES OF FORBEARANCE

Beginning in 1980, the FHLBB started to sweep aside the problems of the S&L industry. Capital standards were debased in a shortsighted and dangerous attempt to hide the true size of the S&L industry's problems. This was achieved in two ways: (i) accounting gimmicks were adopted to liberalise what could be counted as capital; and (ii) the required capital-to-asset ratio for S&Ls was reduced.

During 1981 and 1982, Regulatory Accounting Principles (RAP) were adopted by the FHLBB (often at Congress's behest) for calculating capital for S&Ls. Being considerably more liberal than Generally Accepted Accounting Practices (GAAP), RAP allowed S&Ls to record inflated net worth values in order to present an appearance of solvency. One of the most harmful aspects of RAP was to allow S&Ls to write off the loss on sale of a fixed-rate mortgage over its contractual life, rather than immediately recognising the loss. Effectively, this allowed S&Ls to record their deferred losses as an asset (Ely and Vanderhoff 1991a).

Other policies of forbearance pursued under RAP included management consignment programs, consent agreements, net worth and income capital certificates (merely loans from the insolvent FSLIC to boost the capital of capital deficient S&Ls), phoenix institutions and supervisory goodwill. While it is beyond the scope of this study to provide a detailed analysis of these policies, it is sufficient to say that each was aimed at lowering the number of official "problem" institutions facing an already swamped FHLBB.

Capital standards were further debased by reducing minimum net worth standards from five percent of fixed liabilities to four percent in November 1980 (DIDMCA), and again to three percent in January 1982 (Garn-St Germain). In addition, capital phase-in rules based standards on a five-year moving average of liabilities, and permitted S&Ls that had not been insured by the FSLIC for twenty years to operate with a lower net worth ratio based upon the fraction of twenty years for which they had been insured. Rapid growth in assets, therefore, especially by *de novo* institutions, required minimal net worth (White 1990).

3.6 AN EXPLOSIVE MIX OF INGREDIENTS

According to White (1990), by the beginning of 1982, an explosive mix of ingredients was in place:

(i) Deregulation had afforded S&Ls expanded opportunities for risk-taking by entering into unfamiliar product lines.

(ii) After Regulation Q was phased out, S&Ls had expanded opportunities to fund that risk-taking. S&Ls with little or no brand-name reputation could attract insured deposits by offering (guaranteed) returns in excess of market rates. The increased deposit insurance limit of $100 000, authorised by DIDMCA, merely reduced the transactions costs incurred by depositors in placing their deposits.

(iii) S&Ls had expanded incentives for risk-taking. Although many institutions, with the help of liberal accounting practices, maintained a facade of solvency, in truth, almost

all S&Ls were either insolvent at market-value, or their capitalisation was very thin indeed. The corporate-finance theory of the previous chapter predicts that these firms would be attracted disproportionately to a flow of positively skewed, negative net present value deals in a desperate gamble for a return to solvency. The absence of capital and the flat-rate structure of deposit insurance premiums would serve only to exacerbate the moral hazard problems of risk-shifting by S&L owners and managers alike.

Overwhelming empirical support for these theoretical predictions can be found in the growth spurt of the S&L industry in 1983 and 1984 (Table 3-1, overleaf). The industry's asset growth during those two years was almost three times the rate of the previous two years, as undercapitalised or insolvent institutions took full advantage of expanded asset powers. S&Ls in Texas and California grew particularly rapidly, with the American Diversified Savings Bank of California topping the list with an average annual growth rate of assets (1983-1985) of 346.3% (Barth *et al.* 1991).

The full impact of the high-risk investment strategies adopted by many S&Ls during this period became apparent in 1988 as the FSLIC's accumulated losses due to asset quality problems began to escalate dramatically (see Figure 3-1, p 40).

TABLE 3-1

Annual S&L Growth Rates

(as measured by assets), 1981-1988

Year	U.S. Total	Texas[1]	California[1]
1981	7,8%	9,7%	8,2%
1982	7,3	13,2	18,3
1983	18,6	33,3	28,0
1984	19,9	38,0	29,6
1985	9,5	18,4	8,8
1986	8,7	5,5	13,1
1987	7,5	2,8	12,0
1988	8,0	11,4	14,1

[1] Asset growth in California and Texas was even greater than the national average due to the more liberal charters available in these states.

Source: White (1990)

3.7 INACTION IN THE FACE OF RISING RESOLUTION COSTS

Even in the absence of an actuarially sound system of deposit insurance, the S&L crisis could not have attained its staggering proportions without regulatory connivance and, in particular, the unwillingness on the part of Congress to admit to the insolvency of the FSLIC (and the consequent need for financial assistance from taxpayers).

Evidence of the lackadaisical approach of the regulatory authorities during the early 1980s can be found in the regulatory resources employed at that time. Between 1981 and 1985, the examination and supervision staff employed by the FHLBB actually declined from 1385 to 1337, while the examination and supervision budget increased only marginally (White 1990). In further support of allegations of regulatory inactivity is the history of FHLBB resolutions, documented in Table 3-2 (overleaf). The 205 insolvent institutions resolved in

1988, at a then-estimated present-value cost of almost $32 billion, had, on average, reported no tangible capital since 1984 or 1985. When one considers that tangible capital figures are still based on the historical cost of assets, on the basis of market value, these institutions had become insolvent even before then. Yet with a federal guarantee, they had managed to continue to attract deposits, taking excessive risks at, ultimately, the taxpayers' expense.

TABLE 3-2

S&L Resolutions, 1980 - 1988

Year	Number of Resolutions[1]	Total Assets of Resolutions ($ Millions)	Estimated Present Value Resolution Cost ($ Millions)	Average Number of Months of Tangible Insolvency
1980	11	$ 1 458	$ 167	5
1981	28	15 908	759	5
1982	63	17 662	806	8
1983	36	4 631	275	16
1984	22	5 080	743	23
1985	31	6 366	1 026	26
1986	46	12 455	3 065	31
1987	47	10 660	3 704	35
1988	205	101 242	31 790	42

[1]Resolutions refer to all institutions either closed (and liquidated), or recapitalised by the FSLIC. Resolution data for 1988 do not include 18 "stabilisations" with an estimated present-value resolution cost of $6 838 million.

Source: Barth *et al.* (1991)

Although the FSLIC was probably insolvent as early as 1982, Congress, unwilling to shore up the finances of this fund due to short-term political considerations, overstated the value of the fund. According to Kane (1989), by making the insurance fund's losses and capital deficit implicit rather than explicit, Congress increased the long-run costs of refinancing the

FSLIC in two principal ways. Firstly, insolvent S&Ls, by gathering insured deposits at above-market rates in order to fund their losses, were effectively creating a more expensive form of national debt than if direct Treasury debt had been used. Considering the borrowings of insolvent S&Ls post-1983 averaged between $300 and $350 billion, the capitalised value of this premium would be considerable. Secondly, understating the FSLIC's cumulative shortage reduced public and political pressure to make timely corrections to the longstanding structural problems of the deposit insurance system.The extent of the dishonesty in quantifying the FSLIC's problems can be seen in the FHLBB's official estimates of the FSLIC's reserve position, which were approved by the General Accounting Office, Congress' investigative arm (see Table 3-3, below).

TABLE 3-3

Comparison of Official Estimates of the FSLIC Reserve Position with Conservative Estimates of the FSLIC's Imbedded Loss in GAAP-Insolvent Firms, 1982 - 1987 (in $ billions)

Year	Official Estimates of Total Reserves	Assets in GAAP-Insolvent Firms	FSLIC-Reported Resolution-Cost Rate	FSLIC's Imbedded Loss in GAAP-Insolvent Firms[1]
1982	$ 6,3	$ 67,8	4,55%	$ 3,1
1983	6,4	83,9	5,93	5,0
1984	5,6	115,5	14,62	16,9
1985	4,6	138,0	16,04	22,1
1986	- 6,3	137,2	24,61	33,8
1987	- 13,7	200,1	34,74	69,5

[1]Imbedded losses are calculated by multiplying the assets in GAAP-insolvent firms by the FSLIC's estimated resolution-cost rate.

Source: Kane (1989)

Even when one considers only the resolution costs of unresolved GAAP-insolvencies (according to historical cost), it is clear that the true value of the FSLIC's net reserves has

been smaller than FHLBB estimates, and that the degree of mismeasurement escalated after 1984.

By 1986, the financial problems of the FSLIC had become too large to hide. Private investors were becoming increasingly concerned as to the creditworthiness of the insurance fund's promises and financial guarantees. Yet the Reagan Administration's Recapitalisation Plan, unveiled in March of 1986, reflected a continuation of governmental "not-on-my-watch" mentality that had proven so costly in the past. The express goal of the plan was to keep the costs of recapitalising the FSLIC off the government budget. The recapitalisation of the FSLIC was further delayed by substantial resistance from the U.S. League of Savings Institutions, the lobbying arm of the S&L industry. Regulatory forbearance had become a politically popular policy, and rent-seeking behaviour by financially troubled institutions continued throughout 1986, while the FSLIC's imbedded losses kept climbing.

Finally, in August of 1987, Congress passed the Competitive Equality Banking Act (CEBA), falsely claimed to have recapitalised the FSLIC. The CEBA created a financing subsidiary for the FSLIC called the Financing Corporation (FICO), authorised to issue $10,8 billion in bonds. Clearly this amount was insufficient to recapitalise the FSLIC, and the CEBA can be more accurately described as a "reliquification" plan (Kane 1989).

The creation of FICO was, predictably, an elaborate attempt to keep the initial costs of bailing out the FSLIC from appearing in the explicit national debt, the reason being that the Treasury does not *explicitly* stand behind FICO. As a result, as Kane (1989) points out, FICO has had to pay about 70 to 110 basis points over the yield on comparable Treasury securities in order to compensate for default risk and liquidity differences. Kane (1989) has calculated the cost of not acknowledging Treasury responsibility for FICO bonds at approximately $100 million *per annum.*

3.8 FIRREA

The CEBA clearly cannot have been intended to be anything more than a temporary measure. In 1989, the incoming Bush Administration faced, as one of its main priorities, the recapitalisation of the FSLIC. The result, the most recent legislation attempting to provide a lasting solution to the problems of the S&L industry, was the Financial Institutions Reform, Recovery and Enforcement Act (FIRREA), enacted in August of that year.

The FIRREA dissolved both the FSLIC and FHLBB in an attempt to separate the functions of industry regulator and administrator of the insurance fund. As Dotsey and Kuprianov (1990) point out, the FHLBB had both the incentive and the means to hide the true condition of the FSLIC. They were replaced by the Office of Thrift Supervision (OTS), responsible for the regulation, examination and supervision of all S&L institutions, and an independent insurance fund, the Savings Association Insurance Fund (SAIF), administered by the FDIC. The Act also restricted investment powers, requiring greater specialisation in mortgage lending, and called for the phasing out of policies of capital forbearance. Flat-rate insurance premiums were increased in order to raise funds for the newly-founded SAIF, and for the first time the necessity for direct government funding was acknowledged (although the amount raised again proved hopelessly inadequate (White 1992)). Again, an off-budget financing subsidiary was used to raise further funds, unnecessarily and deceitfully increasing the ultimate burden for taxpayers.

Although the FIRREA substantially enhanced the "safety and soundness" regulation of the S&L industry, it failed to address the fundamental cause of the debacle, the very structure of the deposit insurance system. The continued assessment of flat-rate premiums means that, even today, deposit insurance remains actuarially unsound, while the degree of discretionary judgement still afforded government regulators fails to preclude the reoccurrence of similar problems. According to Kane (1989):

> "By continuing to treat such issues as 'what is capital' or 'when should an institution be recapitalised or closed' as matters of governmental discretion, the plan allows Congress the opportunity to offer to intervene in the disciplinary activity of regulators

as a 'constituent service' for owners and managers of troubled institutions ....."
(Kane 1989, p.44)

3.9 THE COSTS OF PUBLIC POLICY FAILURE

According to recent estimates, the cost to well-capitalised, soundly-managed financial institutions and other taxpayers of failed public policy in dealing with the S&L industry, is in excess of $200 billion (White 1992). This figure continues to grow at approximately $800 million *per month,* as the 101st Congress, adjourned in 1991, remains unwilling to provide the additional funding necessary to expedite the cleanup (Ely and Vanderhoff 1991a).

In addition to these direct costs are inestimable billions of dollars in indirect costs, resulting from distortions in real estate markets and from an inefficient and partially obsolete S&L industry. From the point of view of allocative efficiency, the overlending of the early 1980s, as well as the tendency towards negative net-present-value projects, has left the Unites States with a pool of ill-conceived (and frequently unsaleable) commercial and residential real estate developments. The recent regulatory crack-down on real estate overlending has further depressed real estate markets and aggravated the problem.

The very existence of the S&L industry is at risk as surviving institutions, by means of higher flat-rate premiums, are being forced to cross-subsidise the costs that failed S&Ls have inflicted on the economy. Government officials, responding to the embarrassments of the past, have tightened the regulatory noose which binds S&Ls, thereby increasing their operating costs and stifling their ability to respond promptly to the changing needs of a technology-driven marketplace. Ultimately and inevitably, this has resulted in a lower standard of financial services being provided at a higher cost.

CHAPTER 4

RESOLVING INCENTIVE PROBLEMS IN DEPOSIT INSURANCE:

A RETURN TO THE MARKET

4.1 REGULATORY REFORM

As observed in the previous chapter, the collapse of the American Savings and Loan industry was the result of the following factors:

(i) the unsound funding structure of S&Ls, perpetuated through Regulation Q;
(ii) excessive risk-taking by undercapitalised financial institutions using insured deposits;
(iii) the aggravation of this moral hazard problem by a system of flat-rate deposit insurance premiums;
(iv) the complete absence of market discipline to control risk-taking, due to the extensive "blanket-cover" provided by deposit insurance; and
(v) the incentive problems of government regulators and their unwillingness to take prompt action in closing insolvent institutions.

The extent of the burden that must be borne by American taxpayers provides emphatic illustration of the serious flaws in such a financial regulatory system. Its primary shortcoming was that it ignored, and in many cases attempted to override, market forces. Two paths are open to financial reform. The first involves further utilisation of the regulatory apparatus; the second relies on a reinvigoration of the principles of the market to provide the necessary incentives to guide the industry.

It is not disputed that a political and legal structure is necessary in order to assure individual property rights and provide a framework of rules within which markets operate. But the dangers of using detailed regulation to guard against the normal risks of a competitive marketplace are self-evident in the collapse of the Savings and Loan industry. Regulation has proven ineffective and very costly in attempting to secure the safety and soundness of the American financial sector. Further regulation, particularly in an industry experiencing such rapid technological change, is not, then, the solution.

Consequently, in this chapter, a broad spectrum of possible reform proposals to the system of deposit insurance as implemented by the Federal Savings and Loan Insurance Corporation (FSLIC) will be considered. Such considerations are, of course, of equal relevance, *mutatis mutandis*, to other systems of deposit insurance, and indeed investor protection schemes generally. The suggestions for reform share a common theme: each one, to a greater or lesser extent, attempts to create incentives for private individuals (whether shareholders, creditors, depositors or even private insurers), to assist or replace government regulators in monitoring and constraining risk-taking by financial institutions. The logic behind such suggestions is that the task of monitoring will be performed more efficiently and effectively by private individuals facing a credible risk of loss.

In order to provide some structure to the analysis, the reform proposals are divided into three categories. Such categorisation does not imply that the various proposals are necessarily mutually exclusive, however, and in many cases optimum results may be achieved using a combination of reforms. The first to be considered are those which retain the government as the sole provider of deposit insurance; secondly, those reform proposals that invoke the use of private insurers in assisting the government in the provision of deposit insurance will be discussed; finally, the necessity for *any* governmental involvement in deposit insurance will be questioned. In the appendix to this chapter, a viable model of private, self-insurance by financial institutions is presented.

It is useful to reiterate that deposit insurance is merely another form of insurance. It can be likened to third-party automobile liability insurance, where the insurer promises to compensate beneficiaries (depositors; motorists and pedestrians) in the event that the parties carrying the insurance (financial institutions; drivers) cause them harm (by not redeeming deposits; causing them injuries). The identities of the insured and the beneficiary are different, yet the insured is expected to exercise caution with respect to the insured event. The reform proposals presented in this chapter draw extensively from the techniques adopted by a typical insurance company to protect itself against excessive risk exposure, mentioned briefly in Chapter 1.

They are:

(i) Assimilate information on the expected risk of insured parties.

(ii) Make use of deductibles.

(iii) Price insurance premiums according to the expected value of insurance.

(iv) Limit the amount of insurance offered.

(v) Cancel insurance, if justified.

(vi) Practice coinsurance.

(vii) Spread risk by reinsurance.

4.2 REFORM INITIATIVES UNDER GOVERNMENT DEPOSIT INSURANCE

4.2.1 Information

One of the most important reforms to deposit insurance, and one upon which almost all other reform proposals rely, is the assimilation of market value accounting information. In the absence of such information, deposit insurers will remain woefully ignorant as to the true net worth and true risk of insured financial institutions. This is most apparent in the event of an insolvency, when the ultimate cost to the deposit insurer is determined by the market value of assets less that of liabilities - historical cost (or book value) accounting figures are effectively irrelevant.

Substantial improvements in risk assessment could be achieved by the deposit insurer by requiring that all assets, liabilities and off-balance-sheet commitments of an institution be marked to market value periodically. In this manner, any changes in the solvency position of an insured institution as a result of changes in the creditworthiness of debtors or major movements in interest rates would be promptly reflected. If regulators were to use such market values as the standard for determining insolvency, it would substantially reduce the extent of potential claims on the deposit insurance fund.

Mark-to-market accounting would also have other advantages. Capital standards could be used to far greater effect and monitored more accurately; in addition, the improvements in risk assessment would facilitate the setting of risk-based premiums (discussed below). Under a system of historical cost accounting, an institution required to increase its net worth will be tempted to divest itself of its highest quality assets first to realise gains over book value, while leaving poor quality loans on its books, since their book value exceeds realisable value. A system of market value accounting would already have recognised such gains and losses, thus eliminating such perverse incentives.

Finally, market value information has advantages grounded in the political economy. It is abundantly clear, both in theory and in the events leading to the collapse of the Savings and Loan industry, that government regulators are necessarily too slow in closing insolvent institutions, resulting in higher costs for taxpayers. Market value accounting, by making insolvencies more transparent, will limit the scope for regulatory contrivance in masking the true earnings and net worth positions of insured institutions. Consequently, this form of risk-taking at the expense of the public will become more difficult (White 1989).

The primary argument levelled against the use of market value information is that such information is unavailable or would require approximations. Clearly this is not the case for all financial assets. Many of the securities held in financial institutions' asset portfolios are actively traded and secondary markets exist for certain types of loans. Other high quality loans of short maturity or with adjustable rates could be considered to approximate market value, as interest rate risk and default risk are sufficiently small. Problems arise in determining the market value of loans for which no secondary markets exist, such as consumer loans and loans to small business. The technology-driven trend towards "securitisation" (the packaging of a diversity of loans into actively traded securities), and the increase in loan trading amongst institutions, indicates that techniques are being developed in the private sector to value almost all financial assets.

Without doubt, market value accounting will involve some degree of approximation, but the apparent precision of historical cost accounting is a charade. Market value information may not be a perfect indicator of risk, but it will represent a substantial improvement.

4.2.2 Deductibles / Risk-based Capital

The capital or net worth of an insured financial institution can be thought of as a deductible in an insurance policy. It is the first line of defence in the protection of depositors (the second and third being the insurance fund and taxpayers respectively). The logic behind risk-based capital requirements is that the riskier the activities undertaken by an insured institution, the greater the expected value of the insurance option, and thus the greater should be the cost of acquiring that insurance due to the costs of raising additional equity. As such, risk-based capital represents an implicit form of pricing and attempts to force owners of financial institutions to internalise the external costs of excessive risk-taking. Cast in a different light, risk-based capital requirements could be likened to a system of coinsurance, where the "shareholder-insurer", together with the government deposit insurer, guarantees the losses of the insured financial institution. The greater the expected losses of that institution (due to excessive risk-taking), the greater the expected claims against the "shareholder-insurer", who, for obvious reasons, has a natural advantage in controlling such risk-taking. In this way, the moral hazard problems that might otherwise arise with separate shareholders and insurers, are significantly reduced.

The practicalities of a system of risk-based capital are more complex. The central question is: how does one evaluate risk in order to charge the correct (implicit) price for risk-taking? Wherever the pricing mechanism is imperfect, allocational inefficiencies will occur in the form of too much (or too little) risk being taken. The success of any such system requires that the risk weights assigned to the various assets in the portfolio of a financial institution reflect the actual risk of those assets. The existence of high risk assets receiving lower risk weights will result in financial institutions choosing those asset risk levels with the most advantageous insurance-pricing characteristics.

In the late 1980s, after meetings in Basel, Switzerland, bank regulators of twelve industrial nations agreed upon a standard of capital requirements for commercial banks. These "Basel capital standards" were officially introduced to the United States in 1992. According to the standards, banks are required to hold $4 of equity capital for every $100 of "risk-weighted" assets. Essentially, risk-weighted assets are calculated by giving full weight to business

loans, but only a 50 percent weight to home mortgages and no weight at all to Treasury bonds.

The Basel standards have been criticised on a number of grounds. Firstly, the crude asset classification system will, in all likelihood, encourage intra-class substitutions toward riskier assets. Second, the standards ignore interest rate risk incurred by holding mismatched assets (e.g. long-term mortgages funded with short-term deposits). This has been the justification for the maintenance of a minimum "leverage capital requirement" for American banks as a supplement to the Basel standards. Third, the standards fail to consider an elementary principle of finance, namely that the riskiness of a portfolio is a function of the covariances of the returns of the assets in that portfolio, not merely the average riskiness of the assets it contains. Finally, there are fears that any governmental asset classification system may lead, to some degree, to the politicisation of the credit allocation decision of financial institutions.

These criticisms are valid, but insufficient, to condemn a system of risk-based capital for financial institutions. The concurrent use of market value accounting techniques would go a long way towards solving the problems of interest rate risk and developing more accurate categories of asset classification. Risk-based capital is by no means a panacea, but the response to its critics is the same as that to the critics of market value accounting: it may not be perfect, but it represents an improvement over its alternative, uniform net worth requirements. It seems preferable to permit a deposit insurer to attempt to measure risk and act accordingly, rather than to ignore it.

A variant of the risk-based capital proposal, which again may be likened to a system of coinsurance, involves the use of subordinated debt. The deposit insurer could require that some proportion of an insured institution's required net worth be in the form of long-term subordinated debt, held by parties other than the institution's owners. This would provide further insulation for the insurance fund, as the interests of the debt holders would be subordinated to those of the deposit insurer. Since the holders of such debt would not share in the up-side gain of risk-taking by the institution's management/owners, but would be the first to experience down-side losses upon the dissipation of owners' equity, there would exist substantial incentives for them to assist the deposit insurer in its attempts to control risk-

taking. The returns required by these uninsured creditors and the market value of such debt if it were publicly traded, would provide useful information to the deposit insurer regarding the risk-status of the institution concerned. Subordinated debt could also be used to reconcile the conflicting interests of owners and creditors (and/or uninsured depositors). By requiring that the owners of financial institutions hold a certain amount of subordinated debt, regulators could, at least to some extent, nullify the risk-shifting incentives arising from limited liability, particularly when insolvency is imminent.

4.2.3 Risk-based Premiums

Risk-based premiums are similar to risk-based capital in that they, too, attempt to force the owners of financial institutions to internalise the external costs of excessive risk-taking. They differ, however, in that they represent an attempt to price such risk explicity. To the same extent that uninsured creditors require higher returns when they are exposed to greater risk, the deposit insurer should charge higher premiums where insured deposits are used to finance more risky ventures. Following the notation of the first chapter, the deposit insurer should attempt to set premiums equal to the expected value of the insured loss, P_iL.

Clearly such a system is far superior to the practice of flat-rate deposit insurance premiums, still being used by regulators of the Savings and Loan industry. Flat-rate premiums explicitly subsidise risk with the result that the risk-takers of the industry benefit at the expense of their more risk-averse competitors. The across-the-board rate hikes that are currently being implemented in order to recapitalise the insurance fund are aggravating this cross-subsidisation at the expense of soundly managed institutions. Insurance premiums are being used as a revenue-generating device to correct for the sunk-cost mistakes of the past (White 1989).

In order to be effective, risk-based premiums must be set according to *leading* measures of financial risk, thus forcing owners of financial institutions to include the cost of deposit insurance in their cost of funds calculation (Ely and Vanderhoff 1991a). Again one must ask the question: what factors should be considered in evaluating risk? Evidently the capital adequacy of a particular institution will have a significant effect on the probability of that

institution's failure, P_i, and the loss to the insurance fund in the event of failure, L. Risk-based premiums could therefore provide an important supplement to risk-based capital requirements by correcting the capital market's imperfect pricing of risk. Financial institutions would have the opportunity to vary their net worth and portfolio risk at an (estimated) actuarially appropriate relative price. Those institutions with the "most promising" risky portfolio opportunities and those with the lowest cost of capital would be given the chance to exploit these advantages.

Other factors to consider in evaluating risk (apart from capital adequacy and asset quality) might include internal controls and management skills, earnings, liquidity, interest rate risk and asset diversification. Again, market value information would be of considerable use. Since deposit insurance can be thought of as a put option in the hands of an institution's owners, where the stock of that institution is traded in active markets, options pricing techniques could be used to price insurance premiums.

Critics of risk-based premiums are again quick to point out the dangers of mispricing risk, and again deserve the same response: risk-based premiums will, like any insurance premium, misprice risk to some extent. But at least some attempt is then being made to price risk.

4.2.4 Limiting the Amount of Insurance

The reform initiatives considered thus far have (with the exception of the subordinated debt variation of risk-based capital), attempted to increase the market discipline imposed on shareholders of financial institutions by the shareholders themselves. The means of achieving this has been to narrow the gap between the costs and benefits of risk-taking behaviour. Other proposals suggest that there might be some advantage to be gained from exposing certain depositors (and creditors) to a credible threat of loss in the event of bank failure. The threat of loss would encourage these depositors and creditors to assist regulators in monitoring the health of their institutions, resulting in a more timely identification and correction of problems. The owners of financial institutions would find their ability to take risks constrained by the withdrawal of funds in the event that their behaviour was deemed

to be "too risky". Market discipline would be enhanced by the threat of a rational bank run, while a properly functioning lender of last resort would prevent contagion.

Three specific proposals exist to increase depositor discipline, namely decreasing the deposit insurance limit per account, limiting the amount of deposit insurance per individual, and practising some degree of coinsurance between depositors and the government deposit insurer.

Deposit insurance was initially intended to provide a safe investment vehicle for small, unsophisticated depositors. The current deposit insurance limit in the United States of $100 000 is believed by many to be unnecessarily high for this purpose, especially in light of the increasing availability of information regarding the condition of financial institutions. Cargill and Mayer (1992) suggest a lowering of this deposit insurance limit in order to induce larger, more sophisticated depositors to pay attention to the financial condition of their institutions. Such a reduction would, however, in all likelihood, be futile. Individuals with deposits greater than the new limit would merely spread their funds over a larger number of institutions, the only inconvenience being an increase in transactions costs. Attempting to limit the amount of deposit insurance per individual is similarly doomed by the impracticability of enforcement.

Under the coinsurance proposal, depositors might be required to absorb some predetermined share of an institution's insolvency loss, or receive a modified payout consisting of their funds less some *pro-rata* deduction to reflect expected losses. Such a prospect would provide a very real incentive for depositors to exercise control over the owners of financial institutions.

Unsophisticated depositors who feel themselves incapable of monitoring the condition of financial institutions could ensure the safety of their funds by investing in "risk-free" assets such as government securities. A variation on this theme, the so-called "narrow banking" concept, has been proposed by Robert Litan (Litan, 1987).

4.2.5 The Narrow Bank and Tailor-Made Banking

Essentially, the narrow bank proposal requires that any institution offering liabilities in the form of government-insured deposits invest only in highly marketable and essentially riskless assets such as government securities. These "narrow banks" would amount to money market mutual funds in short-term, safe assets, although they would be likely to offer more in the way of depositor conveniences. Other financial services, including commercial, consumer and mortgage lending would be conducted by financial institutions offering liabilities explicitly uninsured by government. Such an institution could be a separate subsidiary of a holding company that also owns a narrow bank, or alternatively, could be an independent entity or part of another commercial, industrial or financial organisation.

The narrow banking concept achieves many of the objectives of deposit insurance reform. Firstly, it provides a safe haven for unsophisticated depositors. Secondly, to the extent that the danger of contagious runs on insured depositories is real, that danger is eliminated by the liquidity of bank assets. Thirdly, it eliminates credit risk, interest rate risk and liquidity risk for insured deposits, and solves the problems of market value information and risk-based capital and premiums for the government deposit insurer. Consequently, it protects taxpayers from loss. Fourthly, taxpayers are further insulated from losses incurred by owners of uninsured liabilities in institutions operating beyond the realm of the narrow bank. These individuals would be required to monitor the condition of their respective institutions and exercise discipline where necessary, driven by the threat of material loss. Finally, if sufficient "narrow assets" were available, deposit insurance would become redundant, except in cases of outright fraud and theft. Hence the dangers that arise from the incentive problems of government regulators would all but disappear as the need for, and discretion of, these regulators diminished.

The main criticism levelled against narrow banking is that it would impede the banking synergies becoming increasingly feasible due to technological advance. The economies of scope among financial institutions' lending and deposit-gathering activities would be largely lost by separating these activities into two different types of institution. Another objection is that there may exist depositors who wish to earn a higher return than the yield on short-

term, safe assets, but who do not wish to expose their entire deposit to the risk of loss. One might argue that such depositors could allocate their funds between a narrow bank and another financial institution according to their preference. A more efficient means of achieving this allocation, and one that would maintain the economies of scope in the provision of financial services, is a proposal that may be called "tailor-made banking".

The tailor-made banking concept

Under a system of tailor-made banking, financial institutions could offer various classes of deposits, each with different levels of insurance. Depositors with a low degree of sophistication could place their funds in a "narrow account", against which the financial institution would have to maintain full, short-term, safe asset backing. Those depositors wishing to earn a higher return could then invest in other classes of deposits, trading off insurance coverage for higher returns. Depending on the class of deposit (and hence the level of insurance), financial institutions would be granted differing degrees of freedom with respect to their choice of asset portfolio. The degree of freedom would clearly vary inversely with the level of insurance, enabling those institutions to invest lower insurance deposits in higher return assets.

This sytem has the advantage of explicitly indicating to depositors that any return in excess of the risk-free rate less transactions costs is associated with some risk of loss. Depositors could choose the class of deposit "tailor-made" to suit them, depending on their perceived degree of sophistication and access to market information, and their attitude toward risk. Unsophisticated depositors would still have access to a safe haven, if they so desire, but the dual functions of deposit-taking and other lending activities would still be housed within a single institution, thus retaining financial synergies. Given the obvious incentives that exist for an institution to invest in the riskiest assets in each category laid down by the government insurers (although this behaviour will now be monitored by depositors facing a real threat of loss), the gathering of market value information and the implementation of policies of risk-based capital and premiums would be useful regulatory supplements to the tailor-made banking proposal. Capital standards and insurance premiums would be determined after taking into consideration factors such as the weightings of deposit classes in an institution's

liability portfolio, the assessed risk of the institution's asset portfolio at market value, and, in the case of the insurance premium, the current net worth of the institution.

While the regulatory burden is significantly greater than for a narrow bank, it is not substantially different from the existing responsibility of government regulators. The choice offered to depositors as to the degree of risk to which they are *voluntarily* prepared to expose themselves offers considerable advantages over the current system of deposit insurance.

4.2.6 Cancelling the Insurance

Not one of the above-mentioned attempts to enhance market discipline will have any significant effect on the behaviour of shareholders, creditors and depositors unless they are strictly enforced by regulators. Noncompliance with the regulatory reforms must be met unequivocally with the suspension of insurance coverage and reorganisation of the institution, or, in the case of book value insolvency, cancellation of any further deposit insurance through closure of the insolvent institution. Deposit insurance limits must be stringently adhered to, and creditors of financial institutions must be convinced that they will carry a portion of any loss in the event of insolvency. Only if regulators perform their function effectively will the market exercise some degree of control over risk-taking behaviour.

Clearly, the regulatory ideology of "too large to fail" (TLTF) must be abandoned, since TLTF eviscerates the entire concept of market discipline. By implicitly guaranteeing that all depositors (insured and uninsured alike), and, frequently, all creditors as well, will suffer no loss in the event of the insolvency of their respective institutions, TLTF effectively destroys any incentives to monitor the financial condition of those institutions. The threat of contagious bank runs is exaggerated, and TLTF should be dispensed with on the grounds that it is "too costly to continue" (Kaufman 1990).

In addition to the abandonment of TLTF, a precommitment to the prompt closure of all financial institutions upon market-value insolvency must be developed. As discussed in the second chapter, this precommitment has been lacking in government regulators as neither their jobs nor their wealth are placed at risk if they fail to act expeditiously. Indeed,

considerable incentives exist to delay action. The problem is compounded by the fact that decisions to close institutions are not made in a vacuum (Kuprianov and Mengle 1989). The political process is biased against any form of punitive action, since those who have the most to lose in the event of punitive action also have the most to gain from rent-seeking initiatives to stave off such action.

The logical response to these problems is to limit the discretion of government regulators in exercising forbearance. By placing legal limits on the discretion of regulators in dealing with financial institutions, the government deposit insurer could lend credence to its policy regarding insolvencies. By its very design, the legal system is more immune to political pressures than are government regulators (Dotsey and Kuprianov 1990). Insolvent financial institutions could be treated in much the same way as are unregulated commercial firms during legal bankruptcy proceedings.

An explicit policy statement by the deposit insurer to the effect that an institution will be closed and liquidated or reorganised as soon as net worth at book value falls below some minimum level (usually zero), and that all creditors and uninsured depositors will be subject to a *pro rata* share of any loss in the event that true net worth is negative, will ensure that failing institutions are forced into legal insolvency proceedings in a timely manner. Enhanced judicial oversight and increased reliance on the legal system will increase the likelihood of the strict enforcement of reform proposals.

A major stumbling block both to the abandonment of TLTF and the limitation of the discretion of regulators in exercising forbearance is political resistance to changes in the status quo. Regulators will as vigorously oppose any attempts to curtail their discretion, as will financial institutions, particularly the large and the poorly-managed, oppose policies of early closure. The problem of political opposition to change could be overcome, at least to some extent, by the introduction of private sector insurers to assist the government in the provision of deposit insurance.

4.3 INVOKING PRIVATE SECTOR INSURERS

> "For a deposit-insurance fund, such policies [of forbearance] reduce the immediate political costs of resolving client insolvencies, but they raise the long-run economic costs of recapitalising the assets these firms hold. Authorities buy time, but they use that time to let the problem fester and worsen ..... In designing and carrying out policies for insolvency resolution, the touchstone should be to negotiate and to enforce for the taxpayer the same kinds of covenant provisions that a prudent private guarantor would require."
> (Kane 1989, p.46)

The benefits of allocating a portion of the total deposit insurance liability to a private insurer or group of private insurers are numerous. Specialised and "politically immune" private firms would be responsible for assessing the financial condition of insured institutions. Since these firms would be putting their own capital at risk, they would have every incentive to collect and analyse the relevant market value information in order to set appropriate risk-based capital standards, risk-based premiums, and, in the event of market value insolvencies, make recommendation for immediate closure. The government deposit insurer (and its insurance fund) would benefit from enhanced market discipline and the unbiased underwriting judgement of an independent professional. Taxpayers would receive considerably more protection from policies of forbearance, since private insurers would have a substantial interest in limiting the discretion of regulators in dealing with insolvent institutions. Either of two essentially similar proposals could be adopted in order to introduce a private insurer or group of insurers into the market for deposit insurance - the coinsurance proposal, or the reinsurance proposal.

4.3.1 Coinsurance

Coinsurance would require the private insurer to take the responsibility for a fixed proportion (10 percent, for example) of any losses suffered by insured depositors as a result of the failure of a financial institution. The balance of such losses (90 percent, in this case) would be met by the government deposit insurer. Thus, the private insurer has a clear, monetary

incentive to ensure that these losses are kept to a minimum.

4.3.2 Reinsurance

The difference between a policy of coinsurance and one of reinsurance is subtle, but significant. Under reinsurance, the government deposit insurer reinsures some specified monetary amount with the private insurer. Only if the losses suffered by insured depositors are in excess of this amount will the liability of the government insurer be invoked. Exactly how this will affect the liability of the private insurer as compared to the coinsurance option depends on the size of the insured loss, the specified amount reinsured, and the coinsurance percentage. Generally, the liability of the private insurer will be greater under reinsurance when the insured loss is relatively small, but in the event of a large insured loss, the percentage insured under the coinsurance option may exceed the reinsurance liability. In fact, the policies of reinsurance and coinsurance could be used in combination with one another, with the private insurer being fully liable for all losses up to some specified amount, and liable for some fixed proportion of any loss in excess of that amount. This would (at least partially) eliminate any disparity that might arise between the treatment by the private insurer of small institutions' and large institutions' insolvencies, under either the coinsurance or reinsurance option.

When confronted with the benefits that arise from the introduction of a private deposit insurer, the logical progression is to question the necessity of *any* governmental involvement in the provision of deposit insurance.

4.4 THE NEED FOR GOVERNMENTAL INVOLVEMENT

4.4.1 Arguments in Favour of Governmental Involvement

The traditional argument for the involvement of government is that the private sector lacks the resources to support a credible system of private deposit insurance due to the magnitude of potential losses. The government, according to the proponents of governmental involvement in deposit insurance, has a natural advantage in its provision by virtue of the

ability to levy taxes. Yet these taxes are levied against the private sector. Thus, any argument that the private sector is incapable of supporting the potential losses arising from insured deposits, condemns *any* scheme of deposit insurance, not merely private ones (Dowd 1989).

In light of the incentive problems faced by government regulators, and the consequent policies of forbearance and TLTF, one can conclude that a governmental system of deposit insurance is likely to accumulate a larger liability than a private system, where such incentive problems are absent. Surely, therefore, if private agents, in their capacity as taxpayers, can support the larger insurance liabilities incurred by their government, they can, as insurers in their own right, support any smaller liabilities they might incur.

Given that the "ability to levy taxes" is therefore largely irrelevant, the sole proviso for a private system of deposit insurance is that the private insurer have a credible means of pledging sufficient capital to cover the (smaller) claims to which it might be subjected. One such means, involving extensive use of the reinsurance principle, is discussed in the appendix to this chapter.

There will always be those who argue that there is no substitute for the sovereign taxing power of government in providing security to insured depositors. However, in view of the significant reduction in the dangers posed by irrational bank runs that can be achieved through sound monetary policy, and in light of the appalling record of government in the provision of deposit insurance, the argument for governmental involvement appears very thin.

4.4.2 Arguments Against Governmental Involvement

Arguments against governmental involvement in the provision of deposit insurance are founded in two fundamental shortcomings of democratic governance, namely (i) the inability to discriminate; and (ii) the inability to respond to a changing environment.

(i) The inability to discriminate

"Insurance and democratic governance are fundamentally incompatible activities. In

> order to be successful, insurers must be able to discriminate among insureds on an objective basis; democratic government, however, is premised on nondiscrimination and equal treatment for all. Therefore, effective insurance programs of any kind can operate successfully only in the private sector and without government subsidy."
> (Ely and Vanderhoff 1991a, p.19)

If the market for deposit insurance was perfectly contestable, the entry and exit of potential insurers would dictate that institutions pay a fair market price for insurance, based on the insurers' informed estimates of their true risk. In the presence of a monopolistic government insurer, financial institutions have no opportunity to "comparison shop", with the result that the government insurer is able to produce and price its services inefficiently.

Any attempt by the government to discriminate on the grounds of risk will be quickly opposed by those who believe they stand to lose from such discrimination. Similarly, any attempts to abandon policies that are no longer warranted will be met with resistance from those with vested interests. This is not to say that it is not possible for government to discriminate according to sound principles, but such discrimination is liable to be "too little, too late", with the result that deposit insurance will always be priced in such a way as to cross-subsidise the risk-takers at the expense of more prudent institutions, thus putting a premium on risk-taking behaviour.

(ii) The inability to respond to a changing environment

> "President Clinton will need to revive the banking system to get the economy moving. The U.S. banking industry is being suffocated by an overwhelming regulatory burden."
> William M. Isaac - former chairman of the Federal Deposit Insurance Corporation
> (Isaac 1993)

The financial services sector is in a state of flux. Rapid technological change is redefining the historic role of depository institutions of credit extension and management of the payments system. This change is apparent not only in information systems (including both

computers and telecommunications), but also in financial technology, particularly in the trend towards the securitisation process which is resulting in a greater standardisation of financial products.

This technological change has a number of implications for the viability of efficient and effective regulation by government of the financial services sector. The economies of scale and of scope brought about by changing technologies, which is evident by the increase in concentration of banking in South Africa, is resulting in larger, more complex organisations which place ever-increasing demands on the regulatory process, particularly at the examination and monitoring levels. In addition, as financial institutions offer a wider variety of services which they can selectively pursue according to their organisational objectives and the prevailing market conditions, the homogeneity upon which all forms of regulation are implicitly based, is destroyed. While this flexibility allows financial institutions to provide an allocatively and technically more efficient service, again the result is increased pressure on regulators to monitor the diverse activities of each and every regulatee. The increasing international flow of transactions further complicates the regulatory process.

Thus, the extent and complexity of the rules required to define permissable and prohibited activities and to cope with possible linkages between the permissable and the prohibited is growing almost exponentially with the complexity of the financial services sector. Consequently, the task of government regulators is becoming increasingly burdensome, and, more significantly, the potential for unintended and undesirable distortions arising from misguided regulation increases all the time. An additional impediment is provided by the democratic requirement that consensus of some sort must be reached in order to adapt regulatory rules to changing conditions. This governmental inertia further increases the danger of regulatory failure.

Clearly, advances in technology are rapidly invalidating the traditional regulatory philosophies according to which regulators should "micro-manage" or control in some detail, those activities which may or may not be conducted by financial institutions, and, in the event of noncompliance, should be the principal source of sanction (Ely 1988). More and more, inappropriate regulation will result in a stifling of innovation in the provision of

financial services and the increased economic burdens of an inefficient financial sector.

The solution to controlling behaviour in an environment of ongoing change and increasing diversity is not the adoption of progressively more complicated rules, but rather to rely on a mechanism that is sufficiently flexible to adapt quickly to technological change, and has the versatility to cope with increasing diversity. The mechanism in question is, of course, the market mechanism. The regulatory tool generated by such a mechanism is a complete set of prices, each one specific to a unique set of circumstances and capable of rapid change in response to a change in those circumstances. Such a mechanism, however, can only operate in private, competitive markets, effectively precluding the possibility of direct governmental involvement in the regulation of the financial sector.

4.5 SUMMARY - SIX ESSENTIAL FEATURES OF DEPOSIT INSURANCE REFORM

In view of the analysis presented in this chapter, one may conclude that a comprehensive reform of the policy of deposit insurance should incorporate the following essential features to the *greatest extent possible:*

ONE: Risk-based deposit insurance premiums and risk-based capital standards set in private, competitive markets using market value information.

TWO: An end to all risk exposure for taxpayers, with deposit insurance provided by private insurers making a credible pledge of sufficient capital to cover any claim to which they might be subjected. The principle of reinsurance might be used to generate an adequate capital base.

THREE: The transfer of all monitoring and supervisory activities to the private insurers, resulting in the strict enforcement of capital standards, insurance premiums and insurance limits, where applicable.

FOUR: The abandonment of TLTF. Financial institutions should not be granted any more protection from failure or competition than other unregulated non-financial firms. This would be achieved by transfering the closure decision to the private insurers.

FIVE: The presence of an effective lender of last resort in order to provide liquidity in times of need, thus eliminating the danger of financial panics. The lender of last resort (usually the central bank), would be insured by the private insurer against any default arising from insolvent, as opposed to illiquid, institutions. This would further insulate taxpayers from insolvency losses.

SIX: Regulation by government to facilitate the implementation of the above-mentioned reforms, and the abandonment of regulatory attempts to substitute for them.

The most comprehensive model of deposit insurance reform, and one which embraces all of the features discussed, has been developed by Bert Ely[1], a financial institutions consultant from Alexandria, Virginia, under the patronage of Congressman Thomas Petri, a Republican from Wisconsin. A brief exposition of this model, essentially an industry self-insurance mechanism for financial institutions, appears in the appendix to this chapter.

[1]Bert Ely has specialised in deposit insurance and banking structure issues since 1981, and has emerged as the nation's most quoted authority on the Savings and Loan crisis.

APPENDIX:

A MODEL OF PRIVATE SELF-INSURANCE FOR FINANCIAL INSTITUTIONS

A.1 AN HISTORICAL PRECEDENT

The concept of private self-insurance for financial institutions is not new. Before the advent of the Federal Reserve, the nineteenth century American commercial bank clearinghouses, which had originally arisen to economise on the transactions costs involved in clearing cheques, provided an informal system of deposit insurance to depositors at member banks.

Dotsey and Kuprianov (1990) describe how, in times of financial panic, these clearinghouses arranged suspensions of deposit convertibility and issued loan certificates to member banks to be used in the clearing process in place of true coinage. Effectively, through this mechanism, the resources of all member banks were pooled in order to insure the safety of the deposit liabilities of each and every member institution. Since the insolvency of any member bank carried with it potential losses for all members, these members had a clear incentive to monitor the financial condition of fellow members and strictly regulate admissions to the clearinghouse. Admission to the New York clearinghouse, for example, required banks to meet a certain capital standard, and to submit to periodic examinations by member institutions (Dotsey and Kuprianov 1990). Failure to meet these standards resulted in exclusion, whilst failure to maintain such standards often lead to expulsion.

Expulsion from, or non-admission to, the clearinghouse mechanism substantially increased the transactions costs associated with clearing cheques, and therefore provided substantial incentives for banks to maintain a sound financial condition. In addition, the exclusion of a particular bank sent an unequivocal message to the market as to the creditworthiness of that institution. In this way, the superiority of financial institutions in monitoring the financial status of their fellow institutions (arising from specialist knowledge and lower costs of gathering information), was used to generate a credible source of market information.

A. 2 A NATURAL EVOLUTION OF MARKET FORCES

Perhaps the most notable feature of this self-regulatory system is that it arose *voluntarily*, motivated purely by the self-interest of the institutions concerned. In all organised markets,

traders have a clear interest in the establishment of a self-regulatory system to protect themselves and their clients. Securities, futures and commodities exchange markets have all evolved standards and codes of conduct to be adhered to, with transgressors facing the threat of expulsion from the market.

It is unfortunate that the evolution of private deposit insurance mechanisms for financial institutions in the United States was effectively terminated by the formation of the Federal Reserve and the subsequent implementation of a government-regulated system of deposit insurance. These moves towards greater government control over the financial sector were a response to the macroeconomic instability at that time, widely believed to be the result of the concurrent financial panics and bank failures. Not only do Tussing (1967) and more recently Kaufman (1990) strongly dispute the responsibility of financial panics for the macroeconomic instability of that period, but Kaufman also provides a convincing argument that the degree of financial instability was more the fault of inadequate monetary policy (essentially the absence of an effective lender of last resort), than the result of any shortcomings in the system of self-insurance being employed by financial institutions. It is quite possible, therefore, that if the federal government had committed itself exclusively to fulfilling the role of lender of last resort, a system of private self-insurance by financial institutions would have been the natural evolution of market forces.

A. 3 THE ELY-PETRI MODEL OF SELF-INSURANCE FOR FINANCIAL INSTITUTIONS[1]

A model of fully-privatised self-insurance for financial institutions certainly sounds like a radical reform of the system of deposit insurance implemented by the FDIC and (now defunct) FSLIC, and it is. Yet under that system, financial institutions do, in fact, already insure themselves. Premiums are pooled, and the proceeds are dedicated to fulfilling individual institutions' promises to their depositors. However, it is civil servants, and not the contributors themselves, who are responsible for setting premiums and monitoring the behaviour of financial institutions. And as has already been noted, in the absence of a

[1]The model was incorporated in a bill before Congress last year, the Taxpayer Protection and Deposit Insurance Reform Act of 1992.

marketplace to discipline this function, government regulators are highly unlikely to make economically rational decisions.

This is the motivation behind the Ely-Petri model. It proposes a shift of the administration of the self-insurance mechanism to a competitive marketplace where sound, actuarially-based insurance principles can be used, principles that the political process could never be expected to adopt. The earning power and capital resources of the entire banking system (if necessary) would be utilised to protect all deposit balances in all commercial banks and savings and loan institutions against any loss whatsoever. Research reveals that the equity capital alone of commercial banks would have been sufficient to have absorbed all depositor losses during the Great Depression, the worst era in American banking history, and still left the banking system well capitalised. This can be seen in Table A-1 (below).

TABLE A-1

The Impact of Depositor Losses on Bank Equity Capital, 1929-1936
(in $ millions)

Year	Reported Bank Equity Capital (June 30)	Depositor Losses	Capital Less Cumulative Depositor Losses	Reduced Capital as a % of Bank Assets	Decline in Capital as a % of Bank Equity
1929	$ 8,780	$ 85	$ 8,695	13,9%	N/A
1930	9,318	265	8,969	14,1%	N/A
1931	8,746	445	7,952	13,7%	-6%
1932	7,484	190	6,500	14,3%	-20%
1933	6,190	650	4,556	11,7%	-34%
1934	6,625	7[1]	4,984	11,5%	-29%
1935	6,601	6[1]	4,957	10,5%	-29%
1936	6,703	3[1]	5,056	9,4%	-28%

[1] FDIC losses plus estimated losses to uninsured depositors.

Source: Ely (1991b)

A.3.1 The 100% Cross-guarantee Concept

Under the cross-guarantee concept, each financial institution would obtain its own cross-guarantee contract issued by an *ad hoc* syndicate of guarantors, consisting of other financial institutions (and possibly even other organisations such as insurance companies and pension funds). This contract would insure all of the institution's deposits from any loss of principal, interest or liquidity, in any circumstance. While the model specifies the insurance of all deposit liabilities (and the possible insurance of other liabilities as well), a modification could easily be made to cap the level of insurance. Each and every guarantor would be required to obtain its own cross-guarantee contract, insuring not only its own deposit liabilities, but also its obligations as a guarantor.

These cross-guarantee contracts would replace the uniform regulation of financial institutions by government regulators, permitting the marketplace to determine premiums and other contractual terms and restrictions according to the individual needs and capabilities of each institution. Petri and Ely (1992) envision monthly insurance premiums based on leading indicators of banking risk designed to deter unsound banking practices.

Based on two features of cross-guarantees, they predict that financial institution insolvencies would become rare events and losses to guarantors would be minimal. Firstly, if an institution began to engage in unsound practices, risk-sensitive premiums based on leading indicators of risk would begin to rise, rapidly depressing the earnings and consequently the stock price of the firm. This fall in stock price would trigger equity market intervention in the form of management changes and/or recapitalisation, restoring the stability of the institution and lowering the insurance premiums. In the absence of such intervention, a continuation of the slide towards insolvency would enable the guarantors to take over the institution before it became market-value insolvent. A takeover point would be negotiated by each institution and its syndicate of guarantors, and specified in the cross-guarantee contract. Where guarantors do not take over a failing institution in time, they will reimburse depositors for any loss suffered.

In the (unlikely) event of a large loss or a concentration of losses, various measures exist to prevent any institution from being driven into insolvency as a result of losses incurred in its capacity as guarantor. The key safeguard is a mandatory "stop-loss" requirement (essentially a form of reinsurance) common to all cross-guarantee contracts. According to this stop-loss requirement, any guarantor whose cross-guarantee losses exceed five times the total of all cross-guarantee premiums collected over the previous twelve months may pass the excess through to its own guarantors. Effectively, the stop-loss feature captures the earning power and the equity capital of the entire banking system in constructing a "solvency safety net" that, by spreading insolvency losses widely and thinly, equips the banking system to survive calamities of the magnitude of the Great Depression (Ely 1991b).

The proposed Taxpayer Protection and Deposit Insurance Reform Act of 1992 includes three additional risk-dispersion requirements. Each cross-guarantee contract must have a minimum number of guarantors, each of whom may assume no more than a limited amount of the risk. This limit is based upon the capital of each guarantor, as is the limit on the *total* amount of cross-guarantee risk that any institution is permitted to assume. In addition, small groups of institutions may not cross-guarantee each other in an undiversified manner due to the danger of a chain-reaction in such a closed-loop situation. Finally, although no specific capital requirements exist for individual banks, the banking system as a whole is required to satisfy a minimum equity standard.

A.3.2 The Proposed Benefits of 100% Cross-guarantees

The Ely-Petri model, as mentioned in conclusion to the previous chapter, incorporates many of the features essential to the meaningful reform of deposit insurance.

The stop-loss feature, and consequent creation of a fully-privatised solvency safety net would put an end to the risk of loss to taxpayers associated with a government-managed deposit insurance fund. Any losses incurred by the government in its capacity as lender of last resort would also be fully insured by the relevant cross-guarantee contract.

Actuarially sound risk-sensitive premiums determined in a competitive marketplace would

largely eliminate the cross-subsidies present in flat-rate deposit insurance premiums, reducing the problem of moral hazard and encouraging a more productive use of credit.

Allocative and technical efficiency gains would be further enhanced by the privatisation of the closure decision. Expedient takeovers of failing institutions, *before* insolvency, would rid the financial sector of, to use Edward Kane's analogy (Kane 1989), "zombie institutions", which, through excessively risky behaviour, high borrowing rates, and low lending rates, force previously healthy competitors into insolvency and similar behaviour. The benefits of these efficiency gains would be enjoyed not only in the financial sector, but also by the economy as a whole.

Another consequence of a private sector closure decision would be the abandonment of the regulatory practice of TLTF and its inherent cross-subsidy at the expense of smaller institutions. The threat of personal loss would provide the incentive for cross-guarantors to close all insolvent institutions, both large and small.

In an environment of rapid technological change, 100% cross-guarantees would enable financial institutions to escape the one-size-must-fit-all mentality of government regulation. Individual institutions would enjoy the flexibility of negotiating a cross-guarantee contract that would allow them to innovate at their own pace and tailor their capital structure according to their own particular lending and investment strategy. The result would be a more dynamic financial sector, better equipped to meet the specialised banking needs and evolving demands of an environment in a state of flux.

Probably the greatest benefit arising from the implementation of the system of 100% cross-guarantees would be the depoliticisation of the financial services sector. Financial institutions would no longer be able to obtain political salvation from adverse market conditions. This would enable the relevant authorities to concentrate solely on creating an environment that would facilitate the efficient operation of the cross-guarantee mechanism.

A.3.3 The Question of Antitrust

Much of the criticism levelled against the cross-guarantee concept is centred around the concern that cross-guarantee syndicates would foster anti-competitive behaviour among financial institutions. According to Petri and Ely (1992), these concerns are unfounded.

Petri's proposed Act requires each cross-guarantee syndicate to retain an independent firm, the so-called "syndicate agent", to monitor the financial condition of the guaranteed institution on its behalf. The independence of the syndicate agent would enable confidentiality to be maintained between the guaranteed institution and its guarantors, some of whom may also be competitors. The syndicate agent would, however, be bound by an unambiguous fiduciary obligation to the guarantors to apprise them of the overall financial condition of the institution. Furthermore, the Act authorises non-banking firms to participate as guarantors, thus broadening the spectrum of potential guarantors from which institutions may choose. Competition amongst cross-guarantee syndicates would protect institutions from premium overcharges and any other competitive disadvantage to which they might otherwise be subjected.

CONCLUSION

This paper has attempted to highlight the dangers inherent in state-sponsored deposit insurance schemes and, more generally, governmental policies of investor protection. It is argued that governmental involvement, in direct conflict with its intended goals, may, in fact, result in increased instability in the provision of financial services.

The ability of government to create significant distortions in the name of investor protection does not, however, necessarily condemn all forms of collective action. According to Davis (1987), efficient, well-defined rules of conduct and property rights, that create competitive market structures and generate a choice of products, price and information, clearly have public-good aspects and consequently may provide justification for some degree of collective provision. Legislation regarding auditing and accounting procedures, as well as sanctions against those guilty of theft or fraudulent misrepresentation, may be employed in order to create a competitive market environment in which buyers and sellers of financial services may transact freely, unencumbered by restrictive regulation. Of paramount importance to all transactions, is that buyers be made aware that any rate of return in excess of the risk-free rate carries with it *some degree of risk.*

In such a competitive environment, financial institutions have a clear self-interest in providing the optimum risk-return combination to investors. Certain risk-averse and/or unsophisticated investors may, however, be reticent to expose themselves to the threat of material losses. Institutions have the choice of responding by offering a guarantee of protection, or of relinquishing a market opportunity which may be exploited by their competitors. Thus, privately-administered deposit insurance schemes may, or may not, arise as a *natural evolution of market forces.*

There is currently no official policy statement with regard to deposit insurance in South Africa. Large financial institutions are, however, implicitly guaranteed by the South African Reserve Bank in its function as lender of last resort. The possibility of increased competition in the provision of financial services, as well as the prospective creation of a mutual banking industry, may result in a demand for the formalisation of governmental policy concerning

deposit insurance. If this is indeed the case, the conclusions arrived at in this paper will be of significant relevance.

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