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NÚMERO 6

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MARKET FAILURES AND ASYMMETRICAL INFORMATION IN FINANCIAL MARKETS: THE CASE FOR PRUDENTIAL REGULATION OR FINANCIAL COLLAPSE?
INTRODUCTION

This paper represents an effort to discuss the issue of whether unregulated financial markets can be implemented and ensure efficiency and stability. In addition, we would like to assess whether some of the financial difficulties can be explained by incorrect regulatory arrangements provided by the monetary authorities.

This discussion has been motivated by the experiences of some developed and developing countries with financial deregulation. As we will see, those experiences ended with the collapse of some financial institutions or the whole banking system, in particular, in LDC's.

Undoubtedly, these experiences have been considered of great interest in explaining the factors which contribute to those failures and in re-assessing the possibility of encouraging strictly laissez-faire policies in money and banking. The lessons learned from these experiences are of great relevance and importance to those less developed economies that want to pursue the liberalisation of their financial sector.

The second motivating factor has been a recent paper written by Friedman and Schwartz (1986). They argued that mutually reinforcing developments, both internal and external have introduced some doubts in the effectiveness and cost of government regulation of financial markets. The development of the public choice theory, rational expectation hypothesis, and the revival of free banking theory by the Austrian School as internal developments and the emergence of an international monetary system based on pure fiat money as external developments, have brought back the issue of government monopoly of outside money and regulation. In fact, the arguments may suggest that even under market failures, the government alternative as an option can be worse than the disease. In other words, the government failure is regarded as worse than the market failure (see Friedman and Schwartz, 1986).

This paper will argue that the introduction of models with asymmetrical information as an internal development have provided fresh intellectual arguments against unregulated financial markets. It will be argued that the intrinsic nature and characteristics of financial services will introduce significant incentives and distortions which will encourage a moral hazard type of behaviour. Today, the process of globalisation and integration of financial services is changing the nature of financial activities and the degree of competition. The need for prudential regulation as well as some institutional changes will be necessary in the new structure of financial markets. This includes the role to be
played by the Central Banks as a Club.

At the same time, we will see that the experiences of developed and developing countries with financial deregulation and their subsequent collapse can be explained by information asymmetries, lack of effective prudential regulation and the unfortunate role played by some of the financial policies enacted by the authorities. The nature of financial markets and the incentive structures have been conducive to moral hazard and adverse selection types of problems.

The accumulated experiences in both developed and developing countries have forced the monetary authorities to accept implicitly or explicitly the difficulties of pursuing deregulation and globalisation of financial services without an adequate and effective prudential regulation, whether it be provided by the state or the private sector. This can be taken as saying that prudential regulation acts as a complement to the process of competition.

The paper contains a non-technical discussion of the theory of asymmetrical information and its implications for financial markets. To highlight the nature of the information problems and the particular characteristics of financial services, the paper will conduct the discussion in broader terms including not only banking services but also insurance, credit, and broker services.

The theoretical discussion is followed by a section which highlights the experiences of some selected countries who have experienced the collapse of their financial institutions. It will be argued that the incentive structure in financial markets has been conducive to additional moral hazard problems.

1. ASYMMETRICAL INFORMATION AND MARKET FAILURES: THE CASE AGAINST LAISSEZ-FAIRE

a) Markets and Information

Information in any process of exchange and production is fundamental to market mechanisms. From a Neo-Classical point of view, economic agents are not only exchanging goods and services and the property right attached to them as they respond to price signals, but also to certain qualities which can be derived from their consumption. It is assumed that market participants are fully informed before trading takes place. In this sense, the market plays an effective role in resource allocation, although as the Austrian School of thought has maintained, specially through the work of Hayek, Von Mises and others, markets should also play a strategic role as a coordinating and information discovery device (for a comparison between Neo-Classical and Austrian Economics on the invisible hand, see N. Barry 1988).

Following the Neo-Classical methodology, the market under information failures will react spontaneously by introducing institutions and contracts.
These arrangements will internalise the associated risk from information asymmetries. For instance, brand names, guarantees, chains and reputation are market arrangements to overcome quality risk (see Akerlof, 1970; Arrow, 1974). There are also market activities of signalling and screening in order to break with the information asymmetries. However, there are limits to such devices and in some cases they provoke socially wasted resources and multiple equilibria, in particular, “separating” and “pooling” equilibria. These problems have been the object of studies in the labour market (on screening and signalling see J. Stiglitz, 1975; and M. Spence, 1973).

Other devices to internalise the risks, whether they come from quality uncertainty or any other source, are insurance and common stock as an spontaneous responses to deal with risks. In the economic system, risks are universal in all processes of exchange and/or production. In a primitive economic system and/or in a situation where the insurance institution does not exist, the producer or consumer will assume all the risks associated with his activity as well as the effort. However, the economic agent could divest himself from his risks by allowing others to take advantage of the benefits through risk-pooling by means of an insurance. If the economic agents are risk-averse and there is an organisation/individual for whom the cost of bearing and pooling risks are lower than the risk-averse individual, then a contract which exchanges and shifts the risks at actuarial premium will be offered. Therefore, the economic system shows that there exists a wide range of risks which it is desirable to shift subject to constraint; there may not be a complete set of contingent contracts available (see Arrow, 1965).

There are many risks which may be uninsurable due to transaction and administrative costs and in particular the moral hazard and adverse selection problems. These are market failures which will arise from the information asymmetries.

The model developed by Akerlof (1970) on product quality and asymmetrical information, shows how a competitive free market economy is unable to deal with information failures. The nature of the problem is demonstrated by the insurance, labour, and credit markets. In Akerlof's “market for lemons”, car buyers cannot distinguish from a good and a bad quality second hand car and their best approximation of the average quality is derived from prices. In this model, there is the incentive for the seller to supply poor quality products since the return from bad quality accrues to the whole group. In consequence, one will expect social and private returns to differ with the effect of a reduction in the average quality being traded and the shrinking of the market. Akerlof accepts the need for government intervention as a welfare improving measure. Therefore, the role of government or any other scheme to regulate quality becomes desirable in a competitive market economy with asymmetrical information.

However, it is argued that the tendency for bad products to drive out good
quality products is valid only if traders are short-sighted. In fact, if the exchange process is a non-cooperative game, then the dominant strategy is the supply of low quality products. But if the problem is described as a supergame where traders exchange commodities and their quality more than once, then good quality supplies correspond to the dominant strategy in this game. The loss of future benefits will rise as they supply low quality products in the first period (see G. Heal, 1976).

On this point, it could be argued that for a supergame to occur traders need to know that the game is repetitive and this will be so if an institutional setting links the past, present and future (see G. Akerlof, 1976). In general, one could expect that in a model with optimising agents and information failures, the price mechanism will be unable to convey information. Spontaneous arrangements may prove to be rather limited in dealing with it as a moral hazard and adverse selection problems can be severe. As we will see in this section, the development of models with asymmetrical information and their implication in financial markets had brought back the issue of the need of some form of prudential regulation in the financial system. These internal developments coming from economic theory have moved the opinion towards a more general consensus on the acceptance of the fact that the unregulated forces of laissez-faire will not guarantee financial stability and efficiency unless different kinds of arrangements are introduced to deal with the problem of moral hazard and adverse selection which will emanate from the information asymmetries.

b) Asymmetrical Information I: The Case Where the Buyer Possesses an Information Advantage Relative to the Seller

In this section the paper will present some ideas and implications for a competitive market economy when the problem of asymmetrical information assumes an information advantage for the buyer. The literature on insurance and credit markets will highlight some of the implications for the efficiency and stability of those markets. Financial services such as insurance and credit are prone to asymmetrical information hazards where sellers of insurance policies and loan contracts are less informed about borrowers' characteristics, in particular about risk.

Asymmetrical information has encouraged market participants to pursue an optimising pattern of behaviour with detrimental moral hazard and adverse selection. The implications for insurance and credit markets have been quite striking. The existence of a wide coverage of different risks have been undermined by asymmetrical information and it could even result in the non-existence of insurance markets at the extreme. The same implications can be derived for credit markets. Therefore under severe information failures the existence and
stability of those markets will be severely affected. In more simple terms, specific contracts and/or services will not be available at all in a private laissez-faire financial market.

Let us begin by examining the implications of adverse selection on insurance and credit markets. Suppose that we have two individuals each one with a different risk characteristic; low and high risks. Thus:

\[ PR_h > PR_l \]  

where \( PR_h \) = probability of a high risk individual.
\( PR_l \) = probability of a low risk individual.

An insurance company offering an insurance contract will be unable to distinguish between these two classes of risks. This can be explained by the high cost of acquiring such information given the outsider and insider problem, and/or the lack of effective screening devices applied by sellers and/or no signalling activities from the buyer. Therefore, we have the following:

\[ PR_a = (Z) PR_h + (1 - Z) PR_l \]  

where \( Z \) = fraction of high risk individuals
\( PR_a \) = average probability of a bad outcome.

Thus, expression 2 means that the insurance company will be pooling risks by offering a single contract for the two types of risk with an actuarial premium based on \( PR_a \). However, the benefits from insuring against bad outcomes are much less than the premium being charged to low risk individuals. Thus:

\[ KL (PR_l) < Ka \{ PR_a \{ (Z) PR_h + (1 - Z)PR_l \} \} \]  

where \( Ka \) = average premium
\( KL \) = actuarial premium for a low risk individual

On this point, Rothschild and Stiglitz (1976) maintained that an insurance market may have two equilibria. A “pooling” equilibria where both individuals buy the same contract and a “separating” equilibria in which different contracts are offered to each risk group. They showed that there cannot be a “pooling” equilibria if a contract with an actuarial premium \( Ka \) is offered as money would be lost. From this argument, one could expect that an insurance contract of this nature would be attracting bad risk rather than good risk individuals.

The possibility of separating contracts will depend on the capacity of sellers to identify good from bad risk individuals on an ex ante basis. The introduction of deductibles and co-insurance may encourage buyers to reveal their risk characteristics. However, given the wide diversity of risks and substantial administrative costs, such mechanisms may be limited.
Adverse selection for insurance markets arises from the fact that insurance companies are unable to separate low from high risk individuals and so they are forced to offer a single insurance contract to both types of individual. An insurance policy with a higher price contract will leave the insurer mainly with a pool of bad risks and a large number of uninsured good risk individuals.

There several examples being reported where adverse selection brought about important welfare reductions as well as the shrinking of such markets.

Akerlof (1970) showed that medical care insurance will be unavailable to elderly people. The increase in insurance price to match the increase in risk will mean that the average medical condition of insurance applicants will deteriorate. Therefore, no insurance will be offered to certain risk groups at any price. The private insurance provision in a competitive market will suffer severe limitations due to information failures which leave some risk categories uninsured. In this sense, one could argue the need for government regulation and/or the provision of insurance as a risk pooling and risk sharing institution.

Credit markets are also affected by adverse selection imposing severe limitations on the price allocation mechanism. In these circumstances, credit will be rationed by means of different criteria.

The literature on disequilibrium and equilibrium rationing have shown the nature of the information problems being faced by banks in the process of credit allocation via price mechanism. The two most illuminating papers on this area are Jaffe and Russell (1976) and Stiglitz and Weiss (1981). The latter introduced a model of “true” equilibrium rationing where they show the effect of adverse selection and moral hazard at market equilibrium interest rate on risk bank portfolio and profitability.

It is argued that the price mechanism as an equilibrium device to clear, lets say, an excess demand for credits will attract borrowers with high probabilities of default.

The adverse selection problem arises as a result of borrowers with different probabilities of repaying their loans, information which is unknown to the bank on an *ex ante* basis. Given the positive correlation between interest rates and default, the optimal rate offered by a bank at which they expect to maximise their expected return is consistent with excess demand in the credit market. Thus, the optimal interest rate $i^*$ is an equilibrium price. The bank will be unwilling to lend to anyone offering a price for credit above $i^*$ due to the likelihood that the borrower will be a bad risk. In this sense, the bank’s expected profit function is not *that of monotonically increasing function with respect to the credit’s price unlike the case under perfect information.*

In the Stiglitz and Weiss’s model, interest rates will be serving as a screening device to sort out good from bad risks instead of being the best allocation mechanism. Even if the bank requires the borrowers to back-up loans with collateral and equity stakes, this in itself may affect the composition of the
bank's portfolios. Wealthier borrowers may prefer more risk in the sense that the relative coefficient of risk aversion must be lower than in less wealthier individuals.

Therefore, the setting of an optimal lending rate $i^*$ on loan contracts and the rationing mechanism will be effective in dealing with the adverse selection problem and the effects on the bank's profitability and portfolio risk.

The conclusions from the model discussed above are quite adverse for the functioning of a free market mechanism for credit, in particular with regard to profitability and the increasing in portfolio risk in banking institutions. The Stiglitz and Weiss's hypothesis can be extremely useful in understanding the process and results of financial deregulation, in particular interest rates, in Southern Cone countries. In fact as we will see later on, the evidence suggests that after the deregulation of credit prices, the banks showed an increase in the risk of their portfolios which contributed to the subsequent bankruptcies. The existence of macroeconomic instability and the incentive structure provided by deposit insurance and the ownership links between intermediaries and industrial conglomerates encouraged bankers to charge lending rates above the optimal $i^*$.

The second important implication from asymmetrical information is the problem of moral hazard. Here, we will explore the basic issues and implications for insurance and credit markets. Let us begin by examining the moral hazard in insurance markets.

There are two basic problems which could affect an insurance company. Firstly, the insurer (seller) will be unable to see what is the extent of the loss to the buyer in case of an adverse state of nature. For instance, the provision of an insurance policy for medical care with unlimited cover. If this is the contract being drawn, then this will lead to the overconsumption of medical care since the marginal cost to the consumer for an extra unit of service is zero. The implications are that the insurance companies will need to raise their premium to all their customers to cover the cost from the excess demand for a unit of medical care. This will lead to some good risks remaining uninsured in spite of the fact that if all customers cut back on medical care, they would be better off. This problem of moral hazard has forced the insurer to introduce deductibles as the insurance is paid on the excess of a loss relative to a pre-established maximum. Also, the introduction of coinsurance has proved useful in dealing with moral hazard. Specifically, the insured is asked to pay a fraction for every peso lost.

Therefore, as the insured is maximising his expected utility from his insurance contract, the liability position of the insurance company will be deteriorating. In the example discussed, the state of nature, namely the optimal amount of medical care required by the patient is unknown to the company. If so, the demand for medical care will be in excess relative to the one under perfect
information (on moral hazard in medical care see Arrow 1963, and Pauly 1968).

The second type of moral hazard occurs when the probability of an adverse state of nature is under the control of the insured and the company can not internalise the additional risk taken by means of the price. In this case, the insurer cannot monitor what the insured is doing given the terms and bounds specified in the contract.

Insurance companies will charge a higher premium per dollar cover as the insured buys a larger amount of insurance. This assumes of course that no effective signalling is made available if self-protection and preventive measures have been taken by the insured. So, if this is the case then we have:

\[ K = yf(y) > 0 \]  

\[ K = \text{premium per dollar} \]
\[ y = \text{cover} \]

Expression 4 means that the insurance premium depends directly on the amount of cover.

The individual will maximise his expected utility with respect to cover and self-protection so that we have:

\[ E(U) = PrU_1(y - L + C) + (1 - Pr)U_2(yf(y)) - Sv \]  

Where:
\[ Pr = \text{Probability of adverse state of nature} \]
\[ Y = \text{initial income} \]
\[ L = \text{loss of income} \]
\[ C = \text{Compensation for the loss} \]
\[ yf(y) = \text{premium per dollar} \]

\[ dE(U)/dC = PrU_1 + (1 - Pr)U_2(-f - yf') = 0 \]  

by rearrangement of (5a) we get:

\[ PrU_1 = PrU_2(1 + yf'f) PrU_2 \]  

In this case when the insurance company cannot set a premium according to self-protection and the utility function depends on the state of nature, then income in each state of nature will not be the same so as to equalise marginal utilities. This will lead to moral hazard in the sense that individuals as optimisers will have the incentive to take more risks and maximise their expected utility function.

With regard to the credit market, it was shown that moral hazard may also result in a deterioration of banks' portfolios. The increase in interest rates can
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induce excessive risk-taking by borrowers. The acceptance of projects with a lower probability of success (large variance) but a higher pay-off could be one of many consequences of borrowers' change of attitudes towards risk.

Stiglitz and Weiss (1981) have demonstrated this very point in theorem 7. Suppose a given interest rate $i$, and a risk neutral firm being indifferent between two projects, $x$ and $y$. Then if the expected return from a project is given by expression 6,

$$E(O) = E \{ \max \{ R_i - (1 + i) B, -C \} \}$$

(6)

so

$$dE(O)/di* = -B \{ 1 -Fi \{ (1 + i) B - C \} \}$$

(6a)

where $E(O)$ = expected return from project $i$

$R_i$ = return from project $i$

$C$ = collateral

$B$ = amount borrowed

Thus, at a given $i^*$ if $E(O) x = E(O) y$, then an increase in interest rate will lower the expected return from the project with the highest probability of paying back by more than it lowers the expected return from the project with the lowerest probability. Furthermore, if $E(O) x = E(O) y$ but var($x$) var($y$) at given $i$, then a bank will prefer to lend to a safer project. In consequence, a rise in $i^*$ will increase the riskiness of the loan and lower the expected return to the bank (see formal proof in Stiglitz and Weiss, 1981).

The impossibility of monitoring borrowers' risk taking will mean that banks at $i^*$ will ration potential borrowers even if the latter are willing to pay a higher cost of borrowing to get finance. On this point, Mankiw (1986) argued that this equilibrium was inefficient and he pressed for the introduction of government regulation and provision of credits. In particular, loans for students, farmers and homeowners will not be privately provided unless government intermediates as a guarantor and/or provider of such loans.

The evidence from the Southern Cone countries suggests that the high cost of borrowing may not stop distress borrowing by firms with financial difficulties. This gamble will also be accepted by financial intermediaries as the macroeconomic conditions begin to deteriorate. Moral hazard will become more acute in the case where there is explicit and/or explicit bail out provisions and there are "related portfolios". It is clear by now that financial markets do not work well under the assumption of asymmetrical information. Some of these problems will become more severe if the institutional structure provides additional incentives to follow that type of behaviour, in particular unwise government regulation of financial affairs.
The second type of information asymmetry which will affect financial services occurs when the seller has more information than a buyer. This problem is becoming more evident in developed economies as a result of financial services are becoming more diversified and integrated.

In practice, one can observe that in almost every transaction or exchange there are asymmetries, in particular, with respect to quality information. However, the costs involved from an unsatisfied buyer are rather small portion of his total wealth and in a perfectly competitive market, quality will be assured. Also, client relationship and the non-technical characteristics of the information to evaluate the quality supplied enable the consumer to make an evaluation *ex ante* and on an *ex post* basis.

However, professional services are what concern us here; financial services will involve almost unsolvable information problems given the nature of the service supplied. For instance, the purchase of a service from a broker or investment analyst will involve quality uncertainty. This problem will arise as a result of the sophisticated and technical information related to the service in question and the incentive mechanism which may develop in terms of a principal-agent conflict of interest. This situation implies that not only is the buyer unable to assess quality on an *ex ante* basis, but also *ex post* as well. If this is so, we are at the mercy of the nature of the seller even under perfect competition and assuming that there are several trials in this form of strategic game. It can also be shown that the incentive mechanism will lead to fraud. Alternative arrangements may impose prohibited costs on the consumer (buyer) as he may seek advice and execution from a different supplier of such a service or look for a second opinion.

The literature on medical care has explored the economic implications of a professional relationship between a patient and his doctor. The market itself has developed institutions such as trust and professional ethics to overcome the information asymmetries and the incentive structure. Nevertheless, the regulation of the industry, whether statutory and/or self-regulated, will still be required for the medical profession. (On medical care see the excellent article by Arrow 1963.)

Let us explore further the issue of quality uncertainty on financial services. As argued by Nelson (1970), the purchase of a commodity and/or service will imply two aspects of quality; search and experience quality. Search quality is defined as the *ex ante* information about what is about to be purchased. It is highly improbable that a buyer of an investment or advice service from a broker will have the sufficient technical knowledge and competence on finance to evaluate and judge the credentials and degree of expertise from the seller. Even
though past experience and the transfer of information from buyer to buyer may breach the information gap, the broker's performance will not only be correlated to his knowledge, competence, and skill but also to random events such as luck.

Undoubtedly, search qualities can be enhanced by the provision of publicly recognised qualifications either licenses/or certification and the acceptance of minimum standards by the Club.

With respect to the second aspect of quality, experience qualities are defined as the information acquired only after the purchase or consumption of the service. However, in the case of financial services, this information becomes available only at a high private cost to the buyer. Normally, the purchase of a financial service unlike any common transaction will risk a large portion of the buyer's total wealth. Bank failures, fraud, excessive risk taking, and mismanagement may impose severe losses for an average buyer using the financial system. Thus, financial deregulation and increases in competition must call for the need for prudential measures whether privately or publicly provided to avoid the losses of wealth and reputation from improper financial conduct. This should include severe legal and financial punishment for the supplier. Entry controls to the industry, minimum capital requirements, supervision and monitoring on risk taking must be necessary. It could be argued that as long as prudential regulation is effective then entry control may be unnecessary. In order to protect investors, insurance protection will be introduced such as a compensating fund. Premium payments from brokers need to be correlated to risk in order to avoid any moral hazard.

However, it is a third aspect of quality which represents the most damaging aspect to the market mechanism and the incentive for fraud and moral hazard.

Credence quality is unaccessible to buyers of a professional or financial service. The ex post quality of a service cannot be evaluated unless the buyer is prepared to incur high costs.

Darby and Karni (1973) have shown that the supply of services will be above the optimal. However, fraud will imply some risk to the seller as the non-expert buyer may choose to go elsewhere. Here the supplier has reached the buyer's critical region and hence he may face the reduction of present and future sales. Darby and Karni introduced the following profit function which the supplier wants to maximise.

\[
E(W) = [Ps \times S - TVC(S)] [1 - R(S)] + Z[1 - G(S)]
\]  

(7)

Where \(E(W)\) = expected profit

\(Ps\) = price of service

\(R(S)\) = Probability of customer's refusal to buy

\(TVC\) = total variable cost

\(G(S)\) = probability that customer goes elsewhere in the future
\[ Z = \text{present value of future profits} \]

By looking at the first order condition from 7, we get the optimal amount of service \( S^* \) which maximises profits. The equilibrium condition is given by 7a.

\[
[Ps - MC(S)] [1 - R(S)] = [Ps x S - TVC(S)] R'(S) + Z x G'(S) \tag{7a}
\]

Expression 7a means that at equilibrium, the return from the supply of an additional unit of \( S^* \) must be equal to its cost in terms of increasing probability of losing sales now and in the future. It follows that fraud will occur whenever the left hand side is bigger than the right hand side of 7a (for explicit proof of this see Darby and Karni, 1973).

These conclusions are applicable to the provision of financial services such as broker services. In this case, the buyer is a non-expert and second opinions could be quite expensive. One could ascertain that \( R(S) \) will be small and hence the buyer will be subject to fraud.

Professional ethics and trust are likely to conflict since professional ethics of the profession will not allow professional colleagues (unless there are recognised self-regulating organisations) to set and enforce minimum standards in business practices and conduct. The competitive market mechanism will not enforce such a pattern of conduct unless there is an outside institution like a Club to enforce it.

In practice, as we shall see later, the UK Financial Service Act of 1986 reflects these very concerns in the business conduct and practices of the City of London. Business affairs were not left entirely to the unregulated market and prudential regulation and monitoring were entrusted to the Security and Investment Board (SIB) and to a number of self-regulating organisations (SRO's).

d) Asymmetrical Information III: The implications of Deposit Insurance Scheme

We have seen from the preceding sections that given the intrinsic characteristics of financial services, the inadequate and insufficient information among participants renders the working of financial markets imperfect and it may require the intervention of some form of an outside institution to improve the efficiency and stability of such a market. Furthermore, it is argued by Diamond and Dybvig (1983) that the banks full convertibility of nominal liabilities in conjunction with an asset portfolio whose value may be subject to significant risk and uncertainty as expectations change, may lead to bank runs and hence financial instability.

A bank panic can be transmitted to other healthy financial institutions as the public will respond by a collective withdrawal of bank deposits and/or through the interbank market.
It is argued that bank contracts are much less stable than any type of contractual arrangements between parties. Also, Diamond and Dybvig show that a contract between a bank and a depositor implies multiple equilibria which will depend on the degree of confidence. One equilibria is where confidence on liquidity and financial stability is maintained. This generates an efficient risk sharing equilibria. In contrast, we may have an equilibria with a bank run as everyone is asking for the full convertibility of a bank's liabilities.

Financial arrangements which show bank run equilibria will impose severe economic distortions and costs as it will disrupt production and reduce optimal risk sharing. Therefore, the economic costs from externalities will require alternative financial contracts in order to eliminate the perversive effect from a financial collapse.

Thus, asymmetrical information and bank runs will need the introduction of a banks' club to provide a set of clear and enforceable rules of conduct and entry requirements as well as a compensation fund or implicit deposit insurance and lender to the last resort provision in case of solvency and liquidity problems by one or some of the Club's members. The implementation of a bank's club can be seen as a natural and spontaneous market response in the form of voluntary cooperation and self-regulation or alternatively as coercive and impose regulation from the Central Bank.

Diamond and Dybvig (1983) argues that one form of contract which may prevent a bank run and promote optimal risk sharing is a deposit insurance which carries full insurance. In this case, the government becomes the insurer of banks' liabilities as they guarantee the deposits. Another complementary policy is the Central Bank's function as a lender of the last resort. Under this scheme, the monetary authorities will acquire a bank's assets at a price greater than their liquidation market values.

However, these financial arrangements will result in incentives for risk taking by financial intermediaries and users which is non-optimal from the social point of view as it represents a subsidy on risk taking by the bank and the depositor which is passed onto the government in the form of a deposit insurance paid ultimately by the taxpayer.

If the bank liabilities are insured with a premium which bears no relation to the risk on the bank portfolios, then bank managers will be encouraged to take excessive risk. In addition, this form of institutional arrangement will make depositors indifferent to different bank risks and likely to accept the highest yield offered on its deposits irrespective of the associated risk bearing.

On this point, Meltzer (1976) and Diamond and Dybvig (1986) maintained that an effective deposit insurance is needed to carry a premium which will be positively correlated with risk. Also, the government deposit insurance will need to be complemented by prudential regulation by imposing some restrictions on bank asset portfolios and making suggestions on how to reduce risks.
As an opposite view, Kareken and Wallace (1978) showed that if bank depositors are fully informed about the banks’ strategies and the expected outcomes from them, then depositors will choose those institutions which implement sound financial policies. In addition, bank managers will select strategies which will lower the risk of bankruptcy. If this is plausible, then deposit insurance and regulation will be unnecessary. However, the assumption that the users of financial services don’t have sufficient information on bank strategies, let alone the capacity to assess risk on bank portfolios seems unrealistic unless it is provided in an optimal amount and in the more comprehensible form. For instance, the assessment and classification of bank credit portfolios should be part of the public domain.

What is clear from the discussion is the fact that asymmetrical information problems, in particular moral hazards, can be magnified by a misguided intervention of the Central Bank. This can also be true for the case of private arrangements in the form of private and spontaneous bank clubs.

The implication of moral hazard from such arrangements to deal with financial externalities have explained some of the financial crises of developed and developing countries. For instance, the provision of deposit insurance whether explicit or implicit gave rise to moral hazard on the part of the Saving and Loan institutions in the US and the banking system in the case of Argentina and Chile as we shall see in the next section.

What we have learned from the models presented in this section is that pure laissez-faire in financial markets, in particular the credit and insurance market, does not guarantee efficiency and stability under the assumption of asymmetrical information. The price mechanism does not convey and breach the information gap under information failures unlike the case of perfect information. These problems become quite acute when the financial system goes through a process of financial deregulation and liberalisation.

The need for an external institution, contracts, and supervision become necessary to complement the price mechanism of allocation and to ensure a pattern of behaviour from optimisers congruent with efficiency and stability. However, it is not clear whether these functions can be accomplished by a Club which results from a market and a voluntarilly response or whether we need a coercive arrangement in the form of a benevolent Central Bank as a response to market failures. Pure theory enables us to justify the need for an outside institution in the form of a Club to solve the information failure and the evidence from the following section raises important insights into the effect of misguided financial policies from Central banks in some selected countries.
MARKET FAILURES AND ASYMMETRICAL INFORMATION

2. THE ROLE OF MORAL HAZARD AND ADVERSE SELECTION IN THE COLLAPSE OF FINANCIAL INSTITUTIONS: THE EXPERIENCE OF SOME SELECTED COUNTRIES

As we have seen from section II, the development of models with information asymmetries have had important implications for the efficiency and stability of financial markets. Moreover, these internal developments coming from economic theory not only introduced fresh arguments against pure *laissez-faire* in financial markets but also the acceptance of some form of intervention and regulation to preserve the stability and efficiency of the market.

In practice what we observe is a clear departure from pure *laissez-faire* towards more regulated and supervised financial markets. However, the introduction of a new regulatory framework does not represent a tendency towards the centralisation of financial affairs and hence a substitute of market arrangements. Instead, it is becoming accepted that regulation represents a complement to the competitive process in dealing with the distortions and incentives emerging from information failures (on these issues see Hall, 1990; Kay and Vickers, 1990; and Araya Gómez, 1992).

The evidence from some developed and developing countries reflects a clear tendency towards financial deregulation complemented with supervision and regulation schemes by self-regulating organisation and/or state agencies. This departure from pure *laissez-faire* and the acceptance of a new role for prudential regulation was influenced by several episodes of financial crisis faced by both developed and developing economies, and the view that information asymmetries have been conducive to such state of affairs.

The financial collapse of financial institutions have forced the acceptance of some of the conclusions derived from the models with asymmetrical information discussed in section II and the need for a more adequate and effective supervision and monitoring on financial institutions. This includes the modifications of deposit insurance provided by the Central Bank. In fact, as we shall see, the financial troubles and bankruptcies affecting intermediaries can be explained, in some countries, by information failure and the incentive structure of financially deregulated markets coupled with a weak and misguided regulation and supervision regime by the authorities.

However, there is a problem of showing how individual information problems can be translated into full blown financial crises. The effects of contagion, collective myopia, and financial bubbles may explain why a single financial institution with a liquidity and/or solvency problem may affect the other healthy ones. However, the evidence from the case of studies presented will suggest that geographical restrictions, related portfolios, and macroeconomic instability within a framework of explicit or implicit bail out provisions may not only exacerbate the moral hazard and adverse selection problems but also make it
general for the whole financial system. In this section, we will explore the experiences of the U.K., the U.S., the Southern Cone countries and Mexico as relevant cases of study of financial crises to show the importance of information failures and the incentive structure in their financial sector coupled with the misguided financial policies.

a) Financial Failures: Two Selected Cases from the U.K.

There are two main episodes of financial failures in the U.K. financial system which exhibit the effects of information failures and the inadequate regulatory and supervisory framework. The introduction of the U.K. Banking Act of 1979 and 1987 reflects the modifications of the modus operandi of the UK regulatory agents to avoid any future financial crisis.

The first episode corresponds to the secondary banking crisis of 1973 followed by the second and perhaps even more important episode concerning the Johnson Matthey Bank in 1984.

The origins of the secondary banking crisis can be explained by changes in the conduct of monetary control by means of the competition and credit control mechanism of 1971. In addition, the deteriorating economic condition also contributed to the financial troubles faced by those institutions.

The objectives of the Competition and Credit Control (CCC) were to foster a competitive environment in the financial sector and to improve monetary management. It was believed that the previous mechanism of monetary control based on quantitative restrictions meant significant static and dynamic efficiency losses. The banking cartel fixed interest rates on deposits resulting in a non-price competition strategy as the banks' branches network were extended rapidly. Also, there were lending ceilings and hire purchase controls.

The effects derived from quantitative and qualitative direct credit restrictions were translated into the expansion of unregulated markets and financial disintermediation.

The authorities were confident about the outcome whereby the CCC would eliminate the economic distortions from the former mechanism and succeed in monetary management via market forces and prices (on monetary control in the U.K. see Artis and Lewis, 1981).

The U.K. property market during the first half of the 70's witnessed a rise in the market value of property assets. This was explained by the acceleration in the rate of inflation at a time when the monetary authorities were unable to control the money supply and cost push inflation was becoming the dominant factor of inflationary dynamics in the UK. Physical assets became good hedges against inflation in the peoples' portfolios. During those years, commercial banks were not allowed by the Bank of England to mediate in the property
market. As result, secondary banks became active participants in such a market and hence they began growing relative to the clearing banks. Secondary banks began borrowing from the wholesale money market as funds were mediated by institutional investors as well as the U.K clearing banks. However, their financial management was becoming a time bomb as they were becoming susceptible to a dangerous mismatch in terms of their balance sheet assets and liability structures. Loans for property development were set on a long term basis whereas the terms of borrowing from the money market were on short term maturity. At the same time, their portfolios were excessively concentrated on the property market alone introducing another source of risk in terms of lack of diversification and exposure of their assets’ portfolios.

By 1973, two events forced an upward trend in domestic interest rates in the U.K. the first being the Sterling crisis to be followed by the introduction of the special supplementary deposit scheme known as the “corset”. The deterioration of property business and the liquidity problem to be faced by bank creditors was just around the corner.

Given the mismatching and overexposure of this type of financial institution, the Bank of England as well as the U.K. clearing banks became aware of the dangers of a financial collapse. The secondary banks’ financial crises could have been spread over the rest of the financial system via the interbank market and depositors confidence. Also, there were fears that a “domino” effect of this nature could affect international confidence U.K. financial market with subsequent implications on the value of the sterling.

The Bank of England acted as a lender of the last resort in order to avoid the externalities from the secondary banks’ liquidity problems. In fact, this function was shared by the Bank of England and the clearing banks by implementing a financial rescue package known as the “lifeboat”.

The evidence from the secondary banking crisis shows two important points. Firstly, it gives support for the existence of lender of the last resort function by the Bank of England, although it may introduce moral hazard related problems. Secondly, it gives evidence of the effect of financial deregulation and the lack of supervision of banking practices, in particular mismatches and exposure.

The secondary banking crisis of 1973 and its aftermath induced the U.K. government to look into the issue of regulatory and supervisory control. The end result was the introduction of the U.K. Banking Act of 1979. It was argued within this context that the banking crisis of 1973 was determined not only by the uncontrolled growth of fringe banks but also by the failure of the Department of Trade and Industry (DTI) and the Bank of England in their supervisory duties. Therefore, the new Act was aimed at correcting the shortcomings of those institutions and to provide a safe proof regulatory structure.

The Banking Act of 1979 made necessary a deposit protection fund whereby banks, and lending and deposit institutions were asked to contribute in relation
to their deposit base and subject to a minimum and maximum contribution level. This fund defined a compensatory 75% of the deposits over a maximum of ten thousand pounds.

According to the discussion from the previous section, this arrangement was likely to induce moral hazard as the contribution was uncorrelated to any measure of bank risks.

Furthermore, the Act gave the financial information a character of confidentiality. The relationship between the Bank of England and the Banks' auditors was considered superficial given the sensitivity of financial information and the bond of confidentiality between the auditors and their clients. The duties of supervision and monitoring by the Bank of England were carried out by relying on statistical information and by means of direct interviews. Obviously, these factors themselves led to a second banking crisis in 1984 with the Johnson Matthey affair.

The second financial episode with the collapse of the Johnson Matthey Bank also reflects features of moral hazard, overexposure and fraudulent activities. In this case, the Bank of England also acted as a lender of the last resort to rescue and avoid any externality in the rest of the industry.

In search for profitable outlets, Johnson Matthey was engaged in very risky lending practices. They had extended large credits to just a small number of clients exceeding the 10% lending limit to capital set by the Bank of England. The evidence from the Treasury and the Bank Review Committee's report showed that Johnson Matthey did not inform that 115% of its capital was lent to two borrowers. In fact, they provided the authorities with false information by reporting an exposure of 72% only.

The losses were estimated at around 248 million pounds which accounted for more than one half of their 400 million pound loans book. Moreover, more than 100 million went to two or three main clients involved in financial deals in Nigeria. In 1984, they faced financial difficulties as the Nigerian government suspended overseas payments after the military coup.

The Bank of England maintained that the Johnson Matthey crisis was due to bad management rather than alleged fraud. On this account, one could argue that bad management and fraudulent banking practices are concepts as difficult as intention in criminal law.

The issues from the arguments suggest that credit concentration and overexposure, the supply of false information, and the inability by the regulatory agencies to avert such a state of affairs were conducive to the fall of Johnson Matthey. Also, it shows the lack of communication between banks' auditors and the Bank of England.

The role of moral hazard in this affair can explain the great deal of excessive risk taking by this institution. As we discussed earlier on, the existence of explicit and implicit bailout arrangements by the Central Bank with a premium
uncorrelated with risk could have encouraged risk concentration and the deterioration of the bank portfolios. At the same time, the deficiencies in monitoring and the lack of information exchanges between auditors and the Bank of England left the U.K. financial system with the worst financial arrangement for stability.

This affair increased the pressure for the modification of the 1979 Banking Act in order to correct the sources of failures and incentives being placed by the Act itself. The New Banking Act was approved in 1987 in order to sort out the shortcomings and deficiencies of the previous one.

On the information side, the New Banking Act aimed at enhancing the relationship between the auditors and the Bank of England. Thus, the confidentiality clause was removed and the supply of false information was considered a criminal offence.

With respect to exposure and reporting requirements, Banks are obliged to report exposures to a single individual over 10% of their capital base and to seek permission on any exposure in excess of 25%. The Act set up a new Board of Banking supervision in order to help the task of the Bank of England and increase the number of staff and the provision of adequate training. Finally, the deposit protection scheme introduced by the Act of 1979 was removed.

The U.K. experience has shown us the importance of the role of information failures and moral hazard in the collapse of the Secondary Banks and in particular in the Johnson Matthey affair. In addition, it explains the move towards more effective regulation schemes in order to overcome their past shortcomings.

It is necessary to point out that these two financial crises are not the exclusive factors in shaping the Banking Act of 1979 and 1987. The process of globalisation and integration of financial services, both domestically and internationally have also played a relevant role. In particular, the increasing competition between commercial banks and building societies in banking and housing services, and investment activities have proven influential (on Financial Regulation and Experience in the U.K., see Mullineux, 1987; and Hall, 1989).

Before moving to the U.S. experience, there is one aspect in the U.K. regulation which is worth looking at. Recently, the U.K. authorities have shown considerable interest in regulating and supervising the market for security and investment services. The DTI commissioned Professor J. Gower to review the investors' protection. After the Gower's report, a White Paper was published in 1985 with some recommendations in order to protect investors from fraud, malpractices, and to provide greater information disclosure and conduct procedures.

The final product of this debate and consultations was the U.K. Financial Service Act of 1986. This Act was aimed at the provision of high prudential and investment standards in the City of London. It included, among other things, criminal sanctions and an industry compensation fund.
Following the “Big Bang” in the stock market in 1986 and the increasing competition from major world financial centers, the authorities have been forced to secure and to guarantee the international reputation of the City. The emphasis has been placed on the role of self-regulating organisation under a statutory scheme run by the newly created Security and Investment Board (SIB).

Under the SIB, there will be several self-regulating organisations which must be recognised first by the SIB. These organisations will monitor professional conduct among their selected members as well as managing the investor protection fund.

It is likely that the Financial Service Act will mean a significant improvement in the supervision and monitoring of business services conduct and a move towards self-regulation. However, one could question how cost-efficient and what kind of distortions in terms of competition, innovation and consumer choice the Investor Protection Act will introduce. (On investor protection in the U.K. and the Act of 1986, see Seldon 1988, and Hall 1989.)

b) United States: The Failure of the Continental Illinois and the Saving and Loan Institutions

The decade of the 80’s had witnessed several episodes of bank failures in the U.S. financial system comparable to the experience during the financial crash of 1929.

The reported evidence for the 80’s shows that from 10 bank failures in 1981, the numbers have reached 120 in 1985. Most of these institutions were concentrated among Farm Banks and Energy Banks. The fall in commodity and oil prices, overproduction in the U.S. and the EEC, and a fall in land and property prices may have precipitated these failures. Thus, the common characteristic of these state-regional small banks has been overexposure within a single specific sector.

As a general rule, prudent and sound banking practices involve the management of less risky portfolios which implies the avoidance of asset concentration and mismatching. In other words, a diversified balance sheet in terms of their assets and liability composition.

Given the highly fragmented structure of the U.S. financial system determined by statutory restrictions, it is not surprising to find a significant asset concentration of regional banks and the lack of a deposit base.

The National Banking Act of 1864 which reintroduces national banks, and the McFadden Act of 1927, prohibited a network of national bank branches across the States. The amendment of the McFadden Act in 1933, permitted national banks to set up branches under the same restrictions applied to local state banks.
The financial fragmentation was also encouraged by the Glass-Steagall Act of 1933 and the Bank Holding Company Act of 1956 which introduced a functional separation between banking and investment services and prohibited financial intermediaries to operate across the states and separate financial activities in terms of a specialised banking system.

Therefore, the geographical segmentation of the U.S. financial system has led to little diversification of bank assets and liabilities and the subsequent deterioration of banks' portfolios. It is reported that the failure of 470 banks in Texas can be attributed to the increase of bank risks due to the lack of diversification of their activities (on the U.S. banking structure and a comparison with European banking see Claire and O'Driscoll Jr., 1991).

However, what can also be considered a matter of real concern were the failures of major national banks, among them, the Continental Illinois in 1984, the 8th largest bank in the U.S.A, the First Pennsylvania in 1980, the 23rd largest, and the Seafirst in 1983, the 29th largest National Bank.

The overexposure arising from financial mismanagement, in some cases, fraudulent activities, and the excessive reliance on wholesale money markets as a source of bank liabilities, are the common features of the financial crisis of those large national banks. Also, the failure of the Office of the Controller of Currency (OCC) in charge of supervising banks' financial activities was a significant contributing factor not only to risky financial strategies but also to moral hazard.

Let us examine some of the evidence from the collapse of the Continental Illinois and explore what we have learned from it. In addition, we will see how the regulatory framework has been modified to deal with sources of the financial troubles of those institutions.

The Continental Illinois was rescued by concerted action between the most important National Banks and the Federal Deposit Insurance Corporation (FDIC) in 1984. This cooperative rescue, just like the U.K. crisis with the Secondary Banks, was agreed in order to avoid the "domino effect".

The financial profile of the Continental Illinois showed a large concentrated portfolio in the energy sector and an excessive reliance on short term interbank credit in order to sustain their lending practices based on liability management. These strategies were influenced not only by the geographical fragmentation of the sector but also from growing competition from less regulated Saving and Loan Associations (SLA).

The rise in interest rates during the early 1980's were also additional adverse economic factors in affecting the quality of banks' portfolios.

However, one could also attempt to explain the worsening position of the Continental Illinois in terms of the implications of asymmetrical information problems in the financial market and financial decisions. Moral hazard could have played a dominant role in the willingness by the bank's manager to take
excessive risks as an optimal private strategy given the intrinsic characteristics of financial services and the incentive structure provided by the institutional setting in the U.S., in particular the deposit insurance scheme.

As we saw earlier, optimal credit decisions cannot only be influenced by moral hazard and adverse selection as the rate of interest was on the increase, but also by the incentive provided by the existence of a full deposit insurance provided by FDIC with a premium uncorrelated with risk and the failures of the supervisor in charge of monitoring and preventing unsound banking management.

Several steps were taken in order to modify the supervisory duties by those responsible to ensure more sound banking practices. On this point, the regulatory agencies depending on the Federal Reserve System (FRS) raised the capital ratio from 5% to 6% in 1986 and banks were asked to make provision for bad debts. In 1986, the Federal Reserve Board (FRB) was suggesting the need of risk based capital requirements to follow those lines in the U.K. and the agreements from the Basle Committee set on 8%, also including off balance sheet activities.

In relation to deposit insurance and information disclosure, the FDIC supported the obligation of disclosure and reporting requirements for Banks as recommended by the White House on banking supervision in 1986. Also the FDIC was arguing against the facto deposit insurance of big banks even though the explicit insurance covered deposits up to U$ 100,000. In spite of the introduction of Modified Payoff Schemes (MPS) whereby the uninsured deposits will be protected up to their expected value of receivership, no further modifications are needed after the Continental Illinois Crisis as full protection was granted after all. This means that credibility will need to be enhanced to eliminate any expectation of implicit bail-out.

Maisel (1981) was arguing on the inadequate fixed rate insurance provided by the FDIC and the capital ratios uncorrelated with risk portfolios even before the financial problems of the Continental Illinois.

The U.S. experience with the Continental Illinois crisis shows a very similar characteristic to the Johnson Matthey Affair in the sense that the essence of the problems were placed on the existence of information failures, moral hazard, and inadequate supervision. In both countries, several steps have been taken by the authorities in order to improve the supervision of the financial system and to eliminate the incentives from the institutional arrangement which induced moral hazard.

The financial problems faced by the Saving and Loan Association during the 1980's represents another episode of financial crisis which carries the same connotations and characteristics as the other cases being studied.

The evidence shows that the Federal Saving and Loan Insurance Corporation dealt with around 900 insolvent institutions between 1980 to 1988. By the end of 1988, 25% of all “thrifts” banks with 32% of the industry’s assets were insolvent.
The sources of these problems were, just like in the U.K. Secondary Banking Crisis, the result of mismatching between assets and liabilities. They were lending on a fixed long term basis and their liability structure was mainly short term. The phasing out of deposit interest rates ceilings and inflation implied that fixed returns on mortgages and raising deposit costs contributed to financial losses. At the same time, lending was expanding quite rapidly with inadequate capital requirements.

In August 1984, the Financial Corporation of America (FCA) was subject to a massive depositors' withdrawal when public confidence was lost as result of the apparent mismatching and liquidity problems. The Depositary Institution, Deregulation, and Monetary Control Act of 1980 lifted the existing restrictions on deposit rates and the inadequate and insufficient resources of the Federal Saving and Loan Insurance Corporation (FSLIC) to back up the FCA did affect confidence in these institutions.

Although the Act of 1980 lifted interest rate control and thus permitted these institutions to set their own deposit rate, they went into direct confrontation with commercial banks as they were allowed to participate in other segments of the financial market. Therefore, poor quality portfolios and excessive risk taking led to the accumulation of liabilities back-up by very risky assets. In fact, the Federal Home Loan Bank Board (FHLBB) found that the real estate investment was grossly overvalued. Moreover, they maintained that in 322 failures, the overvaluation was the dominant factor and at least a quarter of them were insured by the FSLIC.

From this information, one could suggest that quite apart from the deterioration of economic conditions and the increases in competition, much of the excessive risk taking was influenced by a moral hazard type of behaviour which included some fraud in the provision of information. Again, the regulatory authorities should share the responsibility as they fail to monitor banks' practices and activities.

The whole process ended in the revision of the existing regulatory framework to respond to information constraint. In 1986, the FHLBB instructed the Saving and Loan Institution to make provision of 20%, 50%, and 100% of prospective bad loans and to boost their capital provision. Furthermore, the Financial Institution Reform, Recovery, and Enforcement Act of 1989 (FIRREA) was enacted to provide better standards in the SLA's.

Risk based capital standards were introduced in line with those applicable to commercial banks. Also they were required to hold assets in residential mortgages and related assets to qualify for advances from the Federal Home Loans Banks (FHL) and to curtail investment in high yield "junk" bonds and equities.

In terms of institutional changes, a single deposit insurance was implemented by merging the FSLIC and the FDIC, although separate insurance funds will be maintained.
In general, the experience of the U.K. and the U.S. showed that their financial crises could be explained by severe information failures and the incentive mechanism introduced by the deposit insurance and the lack of effective monitoring by the authorities in charge.

In the case of the U.S., the likelihood of financial failures increases as a result of the geographical fragmentation of this sector. Both governments have undertaken substantial revision of their regulation procedures and the instruments to ensure a more stable financial market free of fraud and excessive risk taking. In other words, the acceptance of the role of prudential regulation as a complement to the process of increasing competition and financial deregulation, both in domestic and international markets.

It is necessary to point out at this stage that the role of the globalisation and integration of financial markets has not only forced the monetary authorities to accept the need for the improvement of the supervisory and regulatory framework but also to harmonise it accordingly to dismantle yet another non-price barrier (on globalisation and integration of financial services, see Araya Gómez, 1991).

c) The Southern Cone Countries: The Case of Total Financial Collapse

The failures of financial liberalisation in the Southern Cone countries have thrown substantial evidence about the role of information asymmetries in the total collapse of their financial system.

As argued by Mckinnon and Shaw in their separate work on financial repression in LDC's, financial liberalisation and deregulation should be conducive to the deepening and widening of the financial market and thus contribute to the process of allocation and growth (see Mckinnon, 1973; and Shaw, 1973).

However, the experiences of Chile and Argentina have also shown that ill-implemented and “wholesale” liberalisation reforms in credit markets may adversely affect not only the performance of the financial market during the transition period but also the stabilisation reforms and trade liberalisation efforts and their continuation.

The effect of financial deregulation and privatisation on the demand and allocation of credit as well as all those activities related to risk taking may have had important implications on two relative prices, namely, the real interest rate and the real exchange rate. Undoubtedly, these two relative prices may have introduced destabilising effects on stabilisation policy via the capital account of the balance of payments and thus for a monetary control under a fixed exchange rate regime. The real appreciation may have also impinged upon the performance of the tradable vis a vis non-tradable sectors and the progress of trade
reforms. In fact, the Chilean financial crisis of 1982 was responsible for deep recession as the macroeconomic environment was beginning to deteriorate rapidly and capital inflows were drying off. In that year, the fall in output was more than 14% and the liberalisation reforms culminated in the reversal of the programme, in other words, the socialisation of the financial system and the increase of trade tariff (on the Chilean liberalisation and stabilisation issues see Edwards, 1985; and Araya Gómez, 1989, 1990, 1991).

With respect to the Argentine experience with liberalisation, their stabilisation and liberalisation reforms ended with the first financial crisis in 1980. In spite of that, the order of liberalisation of trade and finance in Argentina followed a different sequence and timing and their success in controlling the government budget deficit was less significant than their neighbours and their financial collapse carried similar features and characteristics.

The first Argentine crisis in 1980 ended with a dramatic fall in output and the second financial crisis of 1989 was the starting point for the hyperinflation process (for a comparative view on Argentina and Chile see McKinnon, 1982; and on the two financial crises in Argentina see L.A. Giorgio, 1991).

Let us examine some of the main features of the financial system and the conduct of intermediaries during the years of financial deregulation.

The financial liberalisation process towards the setting of a laissez-faire structure for credit market was prone to asymmetrical information problems which in turn was conducive to a pattern of behaviour with excessive risk taking, overexposure, fraud, and speculative activities by the "new elite" of business and financial intermediaries. This was quite dramatic in Chile from 1975 until the financial failure in 1982.

This conduct by optimising agents was induced by the inherent information asymmetries in credit markets, the inadequate existing regulative framework, and the structure of ownership and control which emerged from the liberalisation reforms. In other words, the observed banking and business practices showed significant destabilising moral hazard and adverse selection problems and oligopolistic competitive strategies. It is clear from a social point of view that these non-optimal patterns of economic behaviour and the competitive structure which prevailed was encouraged knowingly or unknowingly by the government reforms and the confusion of the fact that liberalisation is a process towards competition rather just an end in itself.

Beyond any doubts, the presence of implicit and/or explicit bail out arrangements, the privatisation process which permitted a market structure and ownership with "related portfolios" and the inadequate supervision and monitoring of bank activities and portfolios exerted additional incentives for a moral hazard type of conduct by the private sector.

Moreover, McKinnon (1989) maintained that macroeconomic instability will also affect banks' credit portfolios as the return on investors' projects becomes
directly correlated. This means that the bankers will face an adverse selection problem as the variance and covariances from the investment yields become adversely affected by macroeconomic instability.

It follows that as the variability of individual projects increases so does the degree of adverse selection, then the optimal lending rate should be lower. Also, a positive covariance among different projects will convert the bank's profit function as a stochastic variable thus increasing the likelihood of financial losses as a result of borrowers' default.

Therefore, if bankers are risk averse and properly regulated then instability in the macroeconomy will encourage a lower real lending rate. However, if there is an inadequate prudential regulation and the existence of implicit/explicit state deposit insurance, bankers will incur severe moral hazard as the managers will be willing to lend at a higher rate than the second best real lending rate.

Under macroeconomic instability, the deposit insurance represents a subsidy on risk taking. If the \textit{ex ante} credit risk pays-off, then the borrowers will repay their loans and bankers will maximise their profits. On the other hand, if the \textit{ex post} outcome is unfavourable, then the highly correlated rate of default among borrowers and bank losses will be absorbed mainly by the governments. The moral hazard by banks themselves should also include possible additional risks coming from moral hazard on investment selection by the borrowers.

However, it could be equally argued that moral hazard and adverse selection problem and the deterioration of bank's portfolios can take place even in the absence of macroeconomic instability. In fact, asset and risk concentration, overexposures, mismatchings, and fraud will occur even in developed economies which show a stable economy. Therefore, when the degree of macroeconomic instability increases, independently of whether the moral hazard becomes more acute among economic agents, the macroeconomic adjustment required will not only lead to the deterioration of the financial structures but also to the financial crisis of individual intermediaries and/or the whole financial system. If we assume that there is already a risky and concentrated financial structure, the instability of real exchange rate and real interest rate and the subsequent adjustment can be severe in the economy as whole.

It could be argued that the factors and characteristics outlined above can be considered the main ingredients for financial collapse. This implies that the implementation of financial deregulation twinned with a misguided and ineffective prudential regulation within a stable or unstable macroeconomic environment can explain the performance and behaviour of financial institutions and the increasing odds of an individual or total financial collapse.

Chile had the implicit bail out of the Central Bank, interlocking ownership between banks and firms, and no effective prudential regulation.

The Argentine Banking System had the explicit bail out and no prudential regulation from the Central Bank. This represented the worst financial arran-
MARKET FAILURES AND ASYMMETRICAL INFORMATION

G. Held, 1991). Given the limitations of space and the purpose of this paper, let us give a general account of the main stylized facts of the Chilean and Argentine experience.

The evidence from Chile shows a significant increase in total financial assets mediated through the financial system from 19.7% of GDP in 1975 to 48% in 1982. This measure included financial and non-financial assets. One characteristic of the financial deepening was that it was mainly short term with less than 90 days.

It also showed that the largest source of the expansion of banks' liability was foreign borrowing to complement or perhaps to substitute the direct liability source from domestic residents. The evidence shows that under a fixed exchange rate regime and a gradual lifting of capital flows restrictions from 1979 onwards, capital flows reached nearly US$4.5 billions by 1982.

The question which really matters is how and where those banks' liabilities were allocated among business enterprises and households. It is here that the "Achilles' heel" of the Chilean financial liberalisation lies.

Substantial amounts of financial resources went to finance a boom in the demand for importable consumer durables by households and firms. The increase of private sector indebtedness can be explained very satisfactorily by the effect of relative prices, in particular the real exchange rate, the role of expectations on the sustainability of the exchange rate regime and trade reforms, and the perceived wealth effects (for an extensive discussion of this hypothesis see Zahler, 1985).

However, the role played by "economic groups" and their ownership of the financial institutions also influenced the direction and uses of credits from the growing Chilean financial market. In fact, the banks lent to their own financial conglomerates through different fraudulent and murky practices.

Moreover, a certain fraction of bank credits were extended to finance the formation and competition of economic groups. The economic conglomerates were involved in the acquisition of existing assets to continue their expansion. On this point, Solimano and Meller (1983) showed that the stock market boom during the late 1970's was financed by bank credits at the expense of new productive investment opportunities arising from the newly liberalised real sectors of the economy. Also, stock prices were inflated as result of the asset trading among economic groups. As a result of this, the value of their collateral at market value were appreciated enabling them to request additional banking funds. In some instances, those financial resources were used by economic conglomerates to acquire the bank itself in a process that Luders (1986) called "the bicycle".

Therefore, the lack of diversification of bank portfolios and the concentration
of risks was determined by the ownership structure which was manifested in terms of “related portfolios”. This form of links was financed by bank credits and influenced by a privatisation scheme which began in 1974.

The data from table 1 describes the extent of the financial links established between financial institutions and industrial conglomerates.

The evidence is clear about the extent of the amount of related credit relative to total credit and capital which was evident during the collapse of 1982. The extremely large concentration and relation which appeared during this period indicates the excessive “joint risks” managed by the banks and how successful they were in by-passing the limits established by the Central Bank.

Additional facts show that a large portion of bank credits went to the process of rolling over bad debts during the period when the economic variables such us the real exchange rate and the real interest rate began to deteriorate affecting the groups’ operating earnings and the banks’ financial position. We need to bear in mind that the path of these two key variables was influenced beyond any doubt by the effect of financial liberalisation on the conduct of the private sector and the role of capital flows (on these points see Edwards, 1986; and Araya Gómez, 1991).

Thus, the group began to show an unsustainable increase in the debt/equity ratios followed by the banks’ deterioration in terms of non-performing assets relative to total capital and reserves. In fact, the evidence provided by Arellano (1983) showed that the banks’ ratios went from 11% in 1980 to 113% in 1983. At the same time, the information from table 2 indicates the deterioration of non-performing assets relative to total credit moved from 1.6% in 1979 to nearly 8.5 in 1983.

The question which follows from the evidence presented so far is why firms and households borrowed at a considerable high real interest rate and risk. In fact, the evidence shows that average real interest rate per annum during the liberalisation period was 76.6%. The second related question is why financial institutions, both at home and from abroad, continued extending risky credits at the expense of their own deterioration of asset quality and their apparent responsibility to bear the costs.

Several hypotheses have been put forward to explain such phenomena,

### TABLE 1. Related Portfolios in Chile during 1982 (in %)

<table>
<thead>
<tr>
<th></th>
<th>Related Credit/Total Credit</th>
<th>Related Credit/Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervened Banks</td>
<td>24.6</td>
<td>323.3</td>
</tr>
<tr>
<td>Non-Intervened Banks</td>
<td>11.0</td>
<td>137.9</td>
</tr>
</tbody>
</table>

**Source:** Held, 1989.
MARKET FAILURES AND ASYMMETRICAL INFORMATION

TABLE 2. Non-performing Bank Credits in Chile (in %)

<table>
<thead>
<tr>
<th>Year</th>
<th>Non-P. Credit/Total Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>0.0</td>
</tr>
<tr>
<td>1979</td>
<td>1.6</td>
</tr>
<tr>
<td>1980</td>
<td>1.1</td>
</tr>
<tr>
<td>1981</td>
<td>2.3</td>
</tr>
<tr>
<td>1982</td>
<td>4.1</td>
</tr>
<tr>
<td>1983</td>
<td>8.4</td>
</tr>
</tbody>
</table>


among them one could cite the expectations of falling interest rates, the need to postpone the imminent bankruptcy and the idea that the ex ante interest rates were lower than the ex post.

Although these hypothesis carry an important explanatory power, the paper shows a bias towards the view that the implications of interlocking ownership between financial institutions and commercial firms, the belief or expectation of the existence of an implicit bail-out mechanism in case of a financial crisis, in particular after the signal sent by the Central Bank when the Banco Osorno was rescued in 1977, and the inadequate provision of prudential regulation is a better explanation of this case. All these factors were conducive to severe moral hazard by borrowers and financial institutions, both domestic and international and the insolvency problem and the collapse of the system in 1982.

For instance, a market structure with “related portfolios” may have directed credit to those firms which were technically bankrupt at the expense of overexposure and riskier banks’ portfolios. In addition, the belief of the existence of an implicit bail-out made bank managers feel indifferent about their excessive risk taking and exposure reflecting the induced moral hazard from the availability of the facto insurance.

With respect to the adverse selection problem in the Chilean financial market, one could expect that financial deregulation of interest rates could have affected the quality of the banks’ portfolios as a result of the lack of experience by a loan officer in the new economic structure and the difficulties in evaluating the new risk prospects seeking finance. To my knowledge, there is no evidence on this issue yet.

But instead what we find is a problem of “preferred selection” in banks’ practices determined by the interlocking ownership. In other words, the incentive structure to direct bank credit to preferred clients (on this point see Araya Gómez, 1991).

The information hazards and these patterns of behaviour were magnified by
the inadequate supervision. The regulatory framework before 1981 was resting on the role played by the newly created Superintendencia de Bancos e Instituciones Financieras as the Chilean banking system was moving towards a deregulated multi-purpose banking.

In theory, the financial institutions had the obligation to submit information to this regulating agency about their assets quality and liabilities. In 1974, capital requirements were raised to take into account inflation and the debt/capital ratio was maintained at 20%. At the same time, limits were imposed on individuals and firms on their banks’ share ownership, namely 1.5% for individuals and 3% for firms. However, these limits were abolished in 1978.

In 1980, credit limits on bank capital and reserves were set to a uniform limit of 5% for unsecured credits and 25% for secured ones. Also, there was the intention to restrict borrowers with direct links with the bank to have the same credit limits as the those above.

On banks’ investment, there were 20% limits of banks’ assets in a given firm relative to capital and reserves.

In spite of all this, the collapse of the Chilean financial system highlighted the failure of monitoring and supervision by the Superintendencia de Bancos e Instituciones Financieras. As result, a new classification of loan according to risk and more effective measures to avoid banks’ exposures with single borrowers were introduced. At the same time, a rating of financial institutions was made available assessing the banks’ portfolio quality, management, earnings and liquidity. These reforms became effective after 1982 and they were intended to prevent the repetition of financial discontrol and subsequent collapse of the financial system in 1982.

The Chilean experience supports the view that financial crises can be explained by information failures and the incentive introduced by it, and also stress the need for prudential regulation in order to have an efficient, stable, and developed financial system for all and not just a few.

In relation to the Argentine experience, the financial collapse of 1979 had somewhat the same connotations as the Chilean case. Although, it is argued that the deterioration of the macro environment came from the lack of progress in the control of the government budget deficit and the premature opening of capital flows, the banking sector showed very risky portfolios and overexposure. This took place in context, at least at first sight, with no interlocking ownership between banks and firms.

The Argentine banks were extending loans to sectors which were having significant reductions in their operating earnings as a result of the appreciation of the real exchange rate and the increasing cost of borrowing. It was showed by Petrei and Tybout (1985) that income from tradable goods fell relative to non-tradables until 1981. Therefore, tradables firms were facing a fall in earnings and increasing debt obligations forcing these institutions to seek
distress borrowing from the financial system just like the Chilean case.

The Argentine financial institutions were encouraging debt accumulation of the private sector at the expense of their own financial position. This took place in spite of high interest rates, demonetisation and falling confidence in the financial system.

The manifestation of the unhealthy state of the Argentine financial system was the collapse of one of the biggest banks in 1980, Banco de Intercambio Regional (BIR).

By a closer scrutiny of banking practices and incentives in the system, one could argue that they were influenced by the presence of an explicit full deposit insurance on banks' liabilities. The state guaranteed 100% every deposit up to $1,000,000 or less and 90% for all those deposits above that nominal value. This policy introduced severe moral hazard on banks and depositors reflecting a propensity to be indifferent about risk. From a depositor's point of view, every bank represented the same risk as such and thus his decision to allocate his wealth depended on the rate of interest rather than risk. In this respect, risky financial institutions were able to attract deposits by raising deposit rates and forcing other sound institutions to follow. At the same time, banks were indifferent about their risk taking as they were assured of the existence of an explicit bail out in case of financial failures.

This brief presentation of the Argentine financial crisis of 1979 enables us to include this case in the list of financial failures which can be explained by information asymmetries and a pattern of behaviour with moral hazard. Also, one may conclude that an effective prudential regulation and the avoidance of wrong financial policies would have prevented overexposure and risky lending in the Argentine financial system. The need for improvement in supervision and monitoring is latent in any experience associated with financial deregulation. The Argentine case is not an exception to the rule (for a thorough treatment of the Argentine liberalisation and financial crisis, see R. Frenkel, 1980; R. Fernández, 1983; and L. A. Giorgio, 1991).

d) Mexico: The External Financial Crisis and the Case for the Nationalisation of the Banking System

The Mexican financial collapse of 1982 represents another case of study which presents features and conduct which reflect asymmetrical information problems and the failures of the regulators to provide the right incentives. The main difference from the other cases studied above is the fact that the Mexican financial system was still financially repressed and open to international capital flows. Just like the case of Argentina, the government was directly responsible of the degree of macroeconomic instability as they pursued a large government
deficit and they permitted large overexposure in foreign currency. In addition, the external shocks of 1981 were severe given the lack of adjustment in the economy.

The nationalisation of the Mexican banking system in 1982 was motivated by the unsustainable growth in the private sector indebtedness and their incapacity to respond to the financial obligations with local and foreign banks. In this case, nationalisation represented the authorities' effort to avoid the collapse of the industrial and financial institutions.

Nationalisation is an extreme form of regulation as the agents have to adopt the objectives of the principal (government). In this case, the agents (banks) are removed from constraints and other obligations in order to follow the directives sent by the principal and to overcome the present difficulties.

This was the kind of arrangement introduced by the government in order to avert the approaching financial crisis.

The analysis of the financial crisis in Mexico cannot be discussed without an elaboration of the deterioration of the general macroeconomic conditions during the late 1970's and the early 1980's. This does not mean that the deterioration of the financial structures of commercial firms and intermediaries can be exclusively determined by the worsening of the macroeconomy; the ownership, structures, concentration, and financial practices by industry and banks were also relevant. Such a pattern of conduct was encouraged by the presence of moral hazards type of conduct, the inadequate prudential regulation, and the degree of financial repression. Clearly, such structure left the economy open to a traumatic adjustment in the face of any external and/or internal shock affecting the economy.

Let us begin by giving a brief account of the stylized facts of the Mexican experience prior to the crisis of 1982 which ended with the nationalisation of the banks in September of 1982 and the introduction of exchange controls (for a thorough account of the Mexican economic policy see Cardoso and Levy, 1988; and Gil, 1984).

The Mexican financial crisis of 1982 shows some common features with the Southern Cone countries. Nevertheless the policy regimes in Chile, Argentina, and Uruguay were rather different in terms of trade and financial reforms.

Mexico presented a growing and unsustainable external indebtedness by the private sector, and a marked tendency towards ownership concentration and the formation of large financial groups. At the same time, there was a secular deterioration of the macroeconomy in particular, some key relative prices such us the real interest rates and the real exchange rate contributed to the deterioration of the debt/ equity ratios of the private sector and the quality and risk of banks' portfolios. As long as it was possible to roll-over bad debts and there was still fresh foreign finance available to feed this "ponzi game". The Mexican economy was able to continue to live according to the optimistic expectations
being furnished from the oil boom of the late 70's and the economic policies of the Mexican government between 1978 to mid 1981.

The economic disequilibrium portrayed by the movement of those key relative prices and the general macroeconomic environment was driven mainly by the increase of public sector absorption rather than private sector absorption as in the case of Chile.

The increases in fiscal disequilibrium during the decade of the 70's and its acceleration in 1981 occurred in spite of the discovery of new oil deposits and the substantial revenues from oil taxes. More specifically, the evidence suggests that the government deficit experienced a significant reduction from the peak of 8% in 1975 to 5.8% in 1980 expressed as a percentage of GDP. This result was achieved against the backdrop of continuous increases in government spending. The data also shows that expenditures continued growing very rapidly indeed as a percentage of GDP from 27.4% in 1974 to 48.9% in 1982 and an increasing dependence on oil revenues reaching 9.1% of GDP from a level of 1% in 1975. Furthermore, the government also absorbed a large percentage of resources from a modest and relatively low volume of financial mediation via reserve requirements and inflation tax on currency and bank deposits. The evidence shows that for the decade of the 70's, the effective reserve ratio was never below 50% of total deposits and the inflation tax accounted for nearly 5% of GDP (see Gil, 1984; Brock, 1984).

The fiscal disequilibrium was followed by an external imbalance derived from the increase in the demand for importable durables and petroleum related expenditures and an excess demand for non-tradable goods which required the appreciation of the real exchange rate to clear the market. In fact, the evidence shows a significant deterioration of the current account deficit from US$ 1.6 billions in 1977 to US$ 12 billions in 1981. Also, the peso appreciation estimated from a parity index shows an overvaluation of nearly 15% over the peso parity (see Gil, 1984).

At the same time, the government absorption of bank credits led the private sector to seek finance from foreign capital markets at relatively cheaper rates given the degree of financial repression of the domestic financial sector and the excess liquidity in world markets from the OPEC oil revenues.

The continuous disequilibrium in the fiscal finances, and the external sector was maintained while international bankers were willing to extend fresh credits to the government and to the private sector. Thus, the external public debt was growing very rapidly reaching US$34 billion from a level of US$6.2 billion in 1970 and US$21 billion during the exchange crisis of 1976. Also, there is information which confirms that the private debt was around US$22 billion at the beginning of 1984 (on this data see Solis, 1987).

Furthermore, the degree of the fiscal and external disequilibrium was influenced by the international oil prices. Thus, the Mexican economy was left
open to the exposure of negative external shocks in particular, the fall in oil prices and the raising of world interest rates. Therefore, the overvaluation of the Mexican peso, the growing external debt, both public and private, and the reliance on oil revenues introduced fears about the sustainability of the economic strategy. The reduction of oil prices in 1981 and the increase in international interest rates required the adjustment of absorption via the reduction of government deficits and the realignment of the real exchange rate. However, the government postponed the adjustment by borrowing even more from capital markets. A budget deficit of 17.4% of GDP in 1982, an external public debt of US$52 billion in 1981, and a current account deficit of US$12 billion in 1981 not only compromised the credibility of the exchange rate, but also the capacity of the public and private sector to respond to their foreign currency obligations. As foreign borrowing was drying up, capital flight was on the increase, and the expectations of devaluation and thus larger budget deficits and inflation were becoming quite certain, the government decided to devalue in February of 1982. It was argued that such a devaluation was too little and too late to overcome the confidence crisis and the credit worthiness of Mexico (on this point of view of the crisis and indebtedness see Solis, 1987).

However, it could be argued that not only was the adjustment little and too late, but what is more important, the effect of the adjustment process was catastrophic for the private sector in terms of the exposure in foreign currency by industrial conglomerates and the deterioration and overexposure of banks' portfolios. If we suppose for a moment that the adjustment was in time and sufficiently large, the effect would still had been detrimental to the private sector given the levels of overexposure and exchange risk of the private sector and the diversification and quality of banks' portfolios.

The financial structure of the industrial conglomerates and financial institutions shows characteristics which can explain the devastating effects on the adjustment from external shocks. The evidence will show that not only an unsustainable and risky overexposure of external debt was held by the private sector, but also that there was a substantial concentration of foreign indebtedness among a few industrial groups.

The data from table 1 shows the magnitude of the over-exposure of a group of private firms in terms of the debt/equity ratios and the proportion of dollar debt relative to total debt. In addition, there is an indicator of the cost of servicing the debt expressed as a proportion of total sales.

The debt/equity ratio suggests an over-exposure which became acute from 1980 onwards. Also, the proportion of dollar debt relative to total obligations went from 30% in 1978 to nearly 63% in 1981 and its service cost from 3.1% to more than 8% of total sales during the same period. These results are clear evidence of the magnitude of the government's crowding out of the private sector peso credit availability. Also, it was shown that the external debt concentration
TABLE 3. Debt Exposure by Private Sector Firms

<table>
<thead>
<tr>
<th>Year</th>
<th>Debt/Equity</th>
<th>Us$ Debt/Total</th>
<th>Ss. Costs/Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>0.93</td>
<td>30.0</td>
<td>3.1</td>
</tr>
<tr>
<td>1979</td>
<td>1.00</td>
<td>33.7</td>
<td>3.4</td>
</tr>
<tr>
<td>1980</td>
<td>1.14</td>
<td>52.6</td>
<td>6.4</td>
</tr>
<tr>
<td>1981</td>
<td>1.19</td>
<td>62.8</td>
<td>8.1</td>
</tr>
</tbody>
</table>


among 10 industrial conglomerates accounted for about 34% of total external indebtedness of the private sector whereby Alfa, Visa, and Vitro represented 20% of the total dollar debt.

With respect to the banks, they exhibited very concentrated and risky portfolios on a few industrial conglomerates which in some cases were owned and/or developed implicit links with the newly established multi-banking institutions. The Act of 1974 led to the establishment of more concentrated financial institutions as medium size banks took over small financial institutions to compete against Banamex and Bancomer (see Cardeno y Quijano, 1982).

It is clear that the diversification of banks' portfolios was negatively affected by the existence of explicit and/or implicit links between industrial conglomerates and Multi-Banking Institutions.

Given the over-exposure of industrial groups and the excessive concentration of bank credits on a few large conglomerates, the resulting devaluation of 70% in February of 1982, which incidentally was viewed as insufficient at that time, contributed to the deterioration of banks' portfolios and compromised the solvency of those intermediaries who followed imprudent and risky strategies. In addition, large capital flight affected the volume of financial mediation.

The extent of the deterioration of the Banks' financial structure can be appreciated from the information provided by table 2.

The data shows a significant increase in the volume of bad debts relative to the total amount of credit extended by the Banking system from an acceptable 2.2% in 1980 to 4% and 4.7% in 1982 and 1983 respectively. The pattern of bad debts coincides with the adverse macroeconomic condition prevailing in 1982 and the devaluation.

The evidence also suggests that the banking sector was over-exposed as the expected losses from the asset portfolio was above the value of capital and reserves. The debt/capital ratio went from 48% in 1980 to 132% in 1982 and even higher for the year 1983. This result not only shows the effect from the macroeconomic adjustment on the quality of credit portfolios but also an inadequate regime for banks' capitalisation.

The question which matters most is why the industry was willing to take the
TABLE 4. Bad Debts and Credit Portfolios in Mexico  
(in %)  

<table>
<thead>
<tr>
<th></th>
<th>80</th>
<th>81</th>
<th>82</th>
<th>83</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bad Debt/Total Credit</td>
<td>2.2</td>
<td>2.1</td>
<td>4.0</td>
<td>4.7</td>
</tr>
<tr>
<td>Bad Debt/Capital &amp; Reserves</td>
<td>48.0</td>
<td>57.0</td>
<td>132.0</td>
<td>223.0</td>
</tr>
</tbody>
</table>

SOURCE: Somex, 1992

Despite it being difficult to pinpoint the exact causes and to assess the banks' strategies given the confidentiality clause of the National Banking Commission, we can identify general anomalies and conduct which were common to those financial intermediaries which received financial support. It was argued that a deficient credit administration in terms of rolling-over of bad debts, the capitalisation of the interest, and concentration of credits influenced the quality of the credit portfolios held by banks. At the same time, insufficient bank capitalisation, unproductive and low asset return on bank portfolios, and the contagious effect from acquiring small and financially weak intermediaries during the establishment of a Multi-Banking System in the 1970's left some of the banks with a riskier financial structure in their balance-sheets (on these issues see Martinez Rincón, 1991).

As we have seen, the financial market is subject to important and detrimental information asymmetries. Given the intrinsic nature of the financial services, intermediaries and users will exhibit moral hazard and adverse selection type of behaviour which will result in a riskier conduct. Moreover, the financial and industrial ownership structure, the inadequate and ineffective prudential regulation, and macroeconomic instability will exert additional incentives to moral hazard type of conduct and thus excessive risk taking. This means that risk averse individuals will be most willing to accept an unfair bet and to gamble. These are the factors and conduct which caused the Mexican financial collapse of 1982. Moral hazard and macroeconomic instability and the forthcoming adjustment deteriorated the financial structures in Mexico. Beyond any doubts, the government policy and the institutional structure determined the pattern of conduct and the instability of the economy.

The Mexican experience shows that the government failed in two ways. Firstly, the government was directly responsible for the increasing foreign indebtedness by the private sector. The government was financing their deficit via the domestic financial market with the imposition of reserve requirements of nearly 40% for peso deposits and 70% for dollar deposits. Funds for the private
sector were dried up and the interest rate differential was encouraging foreign borrowing.

Secondly, the government encouraged concentration of ownership in the industrial and financial sector. However, what is worse is the fact that there was no monitoring of lending patterns between banks and industrial groups, and external exposure.

The Mexican experience shows the effect of financial repression on the private sector as they need to borrow from international markets and the inadequate control of foreign indebtedness and exposure of private sector institutions. In fact, McKinnon and Mathieson (1981) have shown us that in a financially repressed economy, there is an optimal government reserve requirement which will maximise the seigniorage and the need of exchange control on capital flows.

Nationalisation was the necessary option to avoid the total industrial and financial collapse of the Mexican economy. This option would have been avoided if the government had introduced a correct approach to financial policies and regulation on banks and industrial practices and/or monitored the industrial and financial concentration. At the same time, the authorities should have introduced a more sensible second best strategy for managing a financially repressed economy by introducing exchange control to avoid the crowding out of the domestic financial market.

Financial external deregulation twinned with a financially repressed domestic financial market and no prudential regulation promoted conduct and practices which determined the whole array of industrial and financial troubles which ended with nationalisation.

CONCLUSIONS

There are three important conclusions which can be derived from the paper.

Firstly, we have seen that financial markets under asymmetrical information do not work well relative to the perfect information case. The price mechanism in a competitive market cannot work as an efficient allocation device and cannot ensure a system free of fraud. Efficiency and stability will be impaired by the behaviour with moral hazard and adverse selection problems.

Therefore, information asymmetries have raised several issues about the performance of financial markets and introduced doubts about whether we can envisage an unregulated financial market in a modern financial sector. To leave monetary and banking arrangements to the market will require significant changes in the monetary institutions and the nature of regulation to deal with asymmetrical information problems.

Secondly, we have seen that misguided financial policies exacerbate the problem of asymmetrical information and as such can explain some of the
unfortunate results of some financial episodes.

Thirdly, the practical evidence from the cases studied shows that financial markets are moving away from the idea of an unregulated financial market towards more a supervised financial structure. However, we are not sure whether the introduction of clubs to regulate the market will be left to the market or the central bank as a club.

In most of the cases we looked at, the financial crisis was determined by information failures and the incentive mechanism introduced by it and some of the regulatory framework introduced by the authorities. Thus, the introduction of prudential regulations have meant two things: the rejection of an unregulated financial sector and the acceptance of the fact that financial deregulation needs to be twinned with a modern and more effective prudential regulation. In other words, prudential regulations need to complement a competitive market with asymmetrical information hazards.

The author believes that the modernisation of the financial sector will need to be accompanied by the modernisation of the institutional structure of the economy. The promotion of competition will also require the encouragement of prudent and conservative financial practices. In other words, competitive financial markets under asymmetrical information problems do not work efficiently unless intermediaries are given incentives to act in the interest of the users. This principal-agent problem will not be solved by the market process unless some of the negative incentives are removed and some form of prudential criteria is introduced. The question which remains to be answered is whether the new institutional setting will be provided spontaneously by the market or by the state.

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