INTRODUCTION

Background:

Industrial pollution is surely an outcome of economic growth and the tendency to grow faster makes this problem all the more daunting. The resolution of pollution problems is inherently a resolution of conflicts of interest. Any policy designed to reduce pollution levels will yield benefits to pollutees and impose costs on another group, usually but not necessarily the polluters. At the same time, any policy that fails to totally eliminate the emissions leaves the welfare of pollutees lower than it would be in the absence of pollution unless equivalent compensation for the remaining emissions is paid to them. Though the environment is now accepted as a major policy concern, yet it is increasingly evident that economic analysis is unlikely to provide clear answers to questions of choice affecting major environmental questions. Any economic policy is an evolution from past policies designed to suit the needs of changing times. The economic basis of the environmental problem and the need to change the way individuals and the community make choices with respect to environmental services, preferably through markets, is well recognised. Economic and ecological systems, both complex interdependent systems, increasingly interact in similarly complex ways, and we are a long way from fully understanding those interactions; ethical or moral judgements are involved and social or institutional factors are more important where traditional market arrangements do not operate (Harris, 1996).

Economic literature has concentrated upon what should be done about the environmental problems facing us. Intensive efforts need to be put in where the problems that have arisen in the practical applications of the theoretical understandings of environmental economic policies. Lender liability is one such economic policy which has taken shape as an application of theoretical economics to combat the menace of industrial pollution, in particular. Industries themselves should try and reduce pollution that they generate during their production process. However, generating pollution is cheap and reducing them is costly. Thus, they are better off polluting rather than controlling it. Industrial pollution can be controlled only by proper policing by the government.
Government is the designer of these economic policies and they try to tap the private interest of enterprise participants to serve the public interest. In large parts, proponents and critics of structural reform in corporate governance remain divided over whether participants within the enterprise or external institutions should define and police ‘responsible’ corporate activity. Questions concerning the self-regulatory potential of the enterprise are not limited to the corporate governance debate. They also surface in modest guise even within the framework of corporate profit seeking under external legal constraints. In this more limited context, the question becomes how external controls ought to be crafted and enforced and whom they ought to target. When can we rely on liability rules directed solely at the corporations to assure compliance with legal norms; when should absolute legal duties and sanctions on individual participants in the firm should be imposed; to analyse these narrower questions of self-regulatory capacity, one has to go beyond a simple description of the formal duties that the law imposes on corporate participants. Another important question that needs to be answered is how do the existing legal duties affect the actual incentives of corporate participants and whether they do so in ways that yield the ‘right’ amount of compliance with legal rules --- bearing in mind that enforcing these rules is itself costly.

Civil liability is the key instrument in the environmental control of industry in many countries. Strict liability means that the injurer is required to compensate the injured for the damage done. In the context of environment, it is unanimous with the ‘polluter-pays-principle’. In the absence of market failure, a system of strict liability internalises the environmental externalities and generates the incentive for firms to take right amount of care in their selection of equipment, choice of scale and location and production practices. Problems of environmental degradation and consequently damage payments are more complicated in the case of certain industries (like bioengineering, toxic waste treatment etc. --- the sun-rise industries while dyeing, chemicals etc. among the traditional industries) where the amount of assets are significantly lower in value than the damage that could be caused in case of an accident or alternatively the damage cost may be so high that the firm may not have financial strength to pay the damages caused. Insolvency of the representative firm would prevent full compensation being paid in case of an accident and hence would not in itself motivate the firm to undertake adequate measures to prevent such accidents from occurring. These are the firms which are referred
to as the ‘judgement-proof’ firms (Shavell, 1986) or (Summers, 1983) ‘case of disappearing defendant’. The victims would be left without any compensation to which they are entitled. Various policy measures have been suggested to tackle the problem of the ‘disappearing defendant’. Primary amongst them is the idea that banks should be penalised for the environmental damage done by those to whom they lend. This idea has been formalised as ‘lender liability for pollution control’.

There is an emerging ‘conventional wisdom’ that making lenders liable for all or part of the environmental damage caused by their borrowers will necessarily drive up the cost of capital and so restrain the rate of investment growth in the economy. Segerson (1993) asserts that the rate of interest that the lender charges is an increasing function of the liability it will face in the event of foreclosure. The contrary view was that as a matter of good business sense, the lenders should include environmental risk considerations in their pricing structures and amend the existing ones to reflect any new risk that is being carried in their business. This view lend credence to the fact that lender liability would raise interest rates in the consultative stages to certain industries which are bound to be affected by its introduction. These along with other questions have plagued the proponents of MBIs for pollution control for long. The idea here is to look into greater details at lender liability and its associated problems that together provide for cleaner industrial performance.

Aim and Scope of the Study:

The Coasean framework for effective policy design, advocates market based instruments as more potent than command-and-control measures designed with the same goal in view. The former measure for pollution control attributes the problem of pollution to absence of property rights for environmental resources and the existence of transaction costs as an impediment to the smooth functioning of markets. It advocates a merely supervisory role for the government.

The aim of this study is to examine lender liability as an effective tool for industrial pollution control. Like any other MBI, lender liability also requires a kit to be effective in its goals of curbing industrial pollution. The government would be a supervisor in its activity and the market would take care of the rest. The supervisory role would take shape in the form of framing the associate legalities that authenticate lender
liability as an effective policy tool. The market here would play its part through the rate of interest charged by the lender of funds and the borrower would agree to the terms set by either accepting or rejecting the offer made by the lender. Interest rates, thus, act in eliminating wrong-doers and also in controlling post-contractual misconduct on the part of the borrower of funds. Here, we have modelled lender liability in a highly stylised real world situation. Analytically, we have looked at not only how interest rates can be effective in pollution control but also the impacts of regulatory reforms on interest rates and on lender participation.

Lender liability, however, alone cannot be effective in its aims of industrial pollution control. The thesis has devised a ‘kit’ for lender liability to be effective from the lender’s point of view in controlling industrial pollution. A lender of funds has to ascertain whether the funds are worth loaning out to, to the particular borrower. We have provided some tools in the hand of the lender. One has to ascertain the chances of the money flowing back to the lender. A check on the credit worthiness of the borrower would be a judicious decision on the part of the lender as it foretells the financial health of the borrower. Even if a borrower abides by the contract he might suddenly become bankrupt post-contractually. A check on his credit worthiness would eliminate chances of the lender loosing money on this ground as it would give the lender a historical perspective about the borrower’s financial health.

A check on the borrower’s environmental performance, again, is wise to avoid any losses on the part of the lender. An index of environmental performance of firms within an industry provides a benchmark for firms to act upon, in terms of their environmental performance.

Thus, the attempt here is to check the efficacy of lender liability --- a market based instrument, as an effective tool for industrial pollution control. Along with the tool of interest rate that the lender has at its disposal in selecting or deselecting a borrower we also provide the lender powerful arms by way of assessing the credit worthiness of the borrower as well as measuring its environmental performance.

Thus, the aim of the study is to test the efficacy of lender liability as an effective policy tool for industrial pollution control. An in-depth look at the credit worthiness and the environmental performance would complete a lender’s evaluation of a prospective
borrower's ability to be worthy of a loan and also his ability to repay back the loaned amount.

Organisation Of The Study:

In the first part of the thesis, a model of lender liability has been developed on the basis of Kraakman's (1988) 'Gate-Keeping Analysis'. We have considered the case of a lender of funds and a borrower in our model. The lender would try to ascertain the riskiness of the project being put up for funds. Its aim would be to try and avoid problems of moral hazard and adverse selection. Interest rate is the key instrument used by banks in acting as 'bouncers' (to eliminate wrong-doers) and 'chaperone' (disrupt misconduct post-contractually). It has been shown that only those firms with projects that are sufficiently un-risky will wish to borrow and that an increase in the rate of interest charged by the lender will serve to exclude borrowers at the high risk margin. This effectively reduces environmental pollution and justifies lender liability as an efficient policy.

The acceptance of the fact that lender liability is an effective tool for pollution control is no reason for complacency. It is important to judge if the borrower is credit worthy or not. This is important from the lenders' point of view since an environmentally sound borrower may not have the capacity to pay back the loaned amount. It becomes necessary to ascertain if the loaned amount would be recoverable or not inspite of sound environmental performance. The problem of corporate financial distress leading to default on credit and bankruptcy is as old as the service of lending. Analysis of credit worthiness of firms to determine the desirability of extending credit to them has always been a major concern for banks and financial institutions. Consequently, several bankruptcy prediction models have been developed in the literature over the last three decades and more. Most of these approaches of credit analysis have relied considerably upon the use of financial statements of the borrowing firms, without providing adequate support for the different financial ratios and variables used. They have not risen from theoretical frameworks since there is no accepted theory of bankruptcy.

The need to bring credit risk analysis within a theoretical framework can be met by integrating credit risk analysis into the mould of growth models. This has been attempted in the second part of the thesis. This integration is attempted by building a multivariate model of firm growth, in which the 'ability to pay' of a firm, that is, its credit
worthiness, is explained by the marginal productivity of loan in terms of the growth in assets.

For our analysis, we have chosen a total of 174 firms both in the private and the public sector which belong to the two industry groups. They are that of fertilisers and pulp & paper. The list of firms was made following the industry classification by CMIE. The firms that were considered in the study were more or less large in size within the particular industry, viz., fertiliser and pulp & paper. We have analysed the growth and creditworthiness of firms for the period from 1988 to 1998. In order to ensure the availability of complete time series, we selected only those firms which had been incorporated prior to 1987. There were 56 firms in the fertiliser industry and 118 firms in the pulp and paper industry. Analysis of the growth and in the second part, an assessment of the creditworthiness of firms is discussed. The exercise involves analysis of the growth of firms and an assessment of their creditworthiness has been carried out. Growth theory literature guides us in selecting a large number of variables that are significant from the growth perspective using the multivariate model. In assessing the creditworthiness of firms; we say that a firm is credit worthy if the marginal growth in assets due to the additional loan is adequate to cover the interest payment due to the lender of funds.

We look at a measure of environmental performance of firms in the third part of the thesis. A knowledge of the environmental performance of the prospective borrower becomes a necessary input for the lender in order to ascertain the quality and quantity of care being taken by the borrower who is also the owner-entrepreneur. An environmental rating of firms or an indexation would help assess a firm's environmental performance vis-à-vis other firms in the industry and thus act as a benchmark for the firm. However, it becomes imperative for a firm in any industry to voluntarily disclose its environmental performance for such a project to be successful. We attempt to create an index of the environmental performance of firms in the same two industries as in the previous exercise, that of fertiliser and pulp and paper.

The main difference in the rating process attempted here from the ones attempted before is that it takes account of the financial aspects of a firm along with the environmental factors which have not been done in previous attempts made so far in this field. The rating procedure or more appropriately the ranking or indexing firms on the basis of their environmental performance has been attempted here using an ad-mixture of
both primary and secondary data available of the firms in the two industries of pulp and paper and fertiliser. Since the wastes generated by a particular industry is quite different (and in some cases totally different) from that generated in another industry, hence it is necessary to rate firms in a particular industry separately from that in another industry when the criterion for rating used are industry specific. We do away with the problem of “mixing the oranges and the apples”; pulp and paper and fertiliser industry. We use the following criterion in the construction of our index; (a) the capacity of the effluent generation plant to the total amount of effluent generated by the plant during the process of production; (b) the installed capacity of the production plant to the average capacity of the effluent treatment plant; (c) the capital cost of setting up of the effluent treatment plant to the total asset of the firm that it held when the effluent treatment plant was set up & (d) operating cost of the effluent treatment plant to the profit after tax of the firm.

We have employed different methods of ranking using these four criterion to judge the performance of firms in each of these industries separately. Most of these methods are used for the purpose of creating indices used in the field of development economics. They are the Borda method, the UNDP achievement score (used in the construction of HDI) and the Principal Component Method.

It is imperative for a firm, in any industry, to voluntarily disclose correct information about its environmental performance for any environmental rating project to be successful. This is the major step that needs to be initiated in India as a run up to the implementation of transparent environmental performance of firms, specially those that are liable to cause greater environmental damage to man and society at large. However, lacunae remains in the study specially those arising from lack of scientific knowledge base required for the purpose. This study is useful in so far as it combines both primary and secondary data, as has already been mentioned.

Thus, it is evident that for practical application of lender liability for the control of industrial pollution it is of utmost importance that the credit worthiness of the borrower be ascertained to gauge his capability to repay the loaned amount. Equally important, is to have a measure of the borrowers’ environmental performance. After all, it is this around which revolves the entire idea of lender liability for pollution control. Thus no exercise on lender liability is complete without concurrently looking into the credit worthiness and environmental performance of the borrowing firms.