

Improving Environmental Performance of Pension Funds

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Abstract

The growing influence of environmental considerations in the business decisions is not observed to the same extent in the case of traditional investors. The reasons for this are lack of proof that they will gain financially and the need for relevant information. Though it cannot be positively proven that incorporating environmental factors will increase the shareholder value, the investors especially the Pension fund investors can choose to incorporate environmental factors, in their investments from the strategic management viewpoint considering the future trend in this direction if relevant information is provided.

For this purpose based on an integration of the financial investment criteria with the environmental factors a simple theoretical model is prepared for Pension fund investors after a critical analysis of the motives and barriers for this integration.

After an empirical study it is concluded that at present the motives for improving environmental performance of the Pension funds investors in Sweden are limited. At the same time as they are in an ideal position to lead the way towards sustainable development they should be provided with simple tools that are easily adaptable to their needs as has been proposed in the thesis. This will not only give ready acceptance but also result in an internal demand which can later evolve into more sophisticated approaches towards improving the environmental performance of investments.

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Chapter 1

Introduction

1.1 Background and Choice of Topic:

Importance of investors Sustainable development is also alternatively defined a process of development which leaves at least the same amount of capital, natural and man made, to future generation as current generations have access to. (Delphi 1997). Further in most present day economies development is driven by financial investments. Sutcliffe (1994) also states that an investment is vital for a successful economy. As the main function of the investors is to invest capital for its productive use, they are in an ideal position to lead the way towards sustainable development

Lack of interest by investors: The growing awareness of environmental problems and related pressures from stakeholders in business (Vaughan1993) is making the investors aware of environmental consideration. But inspite of these growing demands, the traditional investors are not daring to risk their financial benefits for environmental benefits (Murray et al1997) Therefore it is essential to critically analyse this lack of interest in order to understand the reasons and provide with solutions.

Environmental funds VS. Other funds: In the financial investment market there are already environmental funds that are catering to the needs of those primary investors which are interested in green financial products. But the size of these funds is very small, around only 5% of the total investments (Delphi 1997). Therefore the traditional investors do not have a stakeholder pull to change their present stand. It is much more important to influence this larger share of the market to orient them towards environmental improvement to compliment the efforts already made by the environmental funds.

Proposed by SKANDIA. This research has been made on the initiative of SKANDIA. SKANDIA had proposed a research on the empirical study of Pension funds regarding environmental issues. The choice of Pension funds is made on their request.

Relevance of the Candidate The background education of the author covers masters in commerce with finance as major and the present education in masters in environmental science makes it suitable for doing the above research.

1.2 Objective of the thesis

The basic objective of this thesis is to develop a framework for incorporating environmental criteria in traditional investment decisions. In order to achieve this objective two more objectives of the thesis are

- To analyse the traditional investment criteria that the investors use for pension funds
- To critically analyse the environmental factors, in environmental investments.

1.3 Disposition

In order to achieve the above objective first the traditional factors used by Pension funds will be analysed in chapter 2. This will help in understanding the various limitations and the framework within which a Pension fund investor makes his decisions.

First a review of various environmental factors of environmental investments is made. With the objective of arriving at a simple quantifiable and proven environmental factors a small set of environmental factors is extracted from 21 case studies of environmentally proactive firms.. This is done, as it is parallel to the objectives of the thesis i.e. achieving environmental improvements in Pension fund investment decision. The different measures used to assess these factors will also be stated. This will help in developing the criteria for environmental investments.

In chapter 4 the purely financial criteria of chapter 2 and the purely environmental criteria developed in chapter 3 are integrated. After an analysis of the motives and barriers for combining both the criteria, an optimal criteria model based on this theoretical analysis is arrived at. This model is used to conduct the empirical study presented in chapter 5.

Chapter 5 is the empirical study of Pension funds in Sweden. A detailed questionnaire survey was conducted to gather first hand information and primary data on Pension fund investment decisions in Sweden. This chapter identifies the environmental and financial criteria of Pension funds, the stakeholder pressures and their views about integrating environmental factors in their Pension fund investments.

Based on the analysis in the thesis conclusions and recommendations specific for the Pension funds are made in chapter 6.

1.4 Methodology

The following sections describe the method, which has been used to achieve the objective of the thesis. It also critically examines the literature that has been used and the course of action taken.

1.4.1 Frame of references

The thesis is the outcome of the authors past studies about Business and finance and the present knowledge gained in the LUMES programme. An attempt has been made in this thesis to incorporate both the fields of knowledge. Both these fields of knowledge act as a basis for making the analysis in this thesis.

1.4.2 Perspective

The analysis in the thesis is from an investor's perspective. The decisions of investors are limited by their primary aim of increasing shareholder wealth and reducing risk. This acts as a foundation for analysing the motives and barriers for incorporating

environmental factors in the investment decision making process by the Pension fund investors. Analysis of Environmental investments in the corporate sector deals with internal investments in the firm, and therefore these investments are studied from the perspective of a primary investor.

1.4.3 Course of action

In order to achieve the objective of the thesis literature as well as empirical study has been made.

Theoretical analysis

First the traditional investment decisions of the Pension funds were studied to understand the scope, limitations and investment criteria of the Pension fund investor. This is based on literature on financial investments. The next step was to study the factors for environmental investments made by the investors. Literature on environmental finance and role of the corporate sector in improving environmental performance was looked into. The documented case studies from credible sources were used to identify the factors for environmental investments.

Literature connected with environmental and finance are used in order to incorporate environmental perspective in investment decisions and discuss motives and barriers for this integration.

Sometimes literature on investments for research and development has also been looked into to understand how investors view new investments.

Empirical study

In order to know the views of the pension fund investors regarding their investment demands and limitations at the same time on integration of environmental considerations in the decision making process, a survey on the Pension fund investors is made. Trade unions or associations of the municipalities own these pension fund companies in Sweden and they are the shareholders as well. Therefore the views of these trade unions as well as associations that direct the decisions of these pension fund companies are also studied. This is done to know the flow of information that influence the investment decisions as well as the nature of customer demands.

Based on the results of the empirical study of the model proposed in the theoretical section, recommendations are made.

1.4.4 Gathering of Data

Five main pension funds, the four trade unions, one association of social insurance companies and the two main bodies that direct the decisions of one of the Pension funds were approached through e-mail, telephone and fax.

Out of these only three Pensions funds answered the questionnaire. Two trade unions and two main municipality associations and the association of insurance companies answered the questioned. The nature of the answers also vary. Some of the

organisations ranked the criteria, others gave a general view of their investment criteria and environmental views. The annual reports of insurance companies that deal with pension funds were also looked into for information about their funds and investment strategies.

The available literature looked into on the relationship of environmental and financial performance from an investor's perspective is limited, as this is a very new field of study. Therefore literature on traditional investment decision making was analysed and compared to the environmental criteria used to enhance financial performance. Articles and reports dealing with the role of financial organisations in sustainable development as well as the actions taken in the corporate sector for making environmental investments have been studied. Lectures and study notes in the various subjects studied in LUMES are also used as a basis.

1.5 Criticism

1.5.1 *Use of sources and analysis of data*

The data used for making the environmental investment model is based on secondary material. Therefore it can be argued that environmental investments based on reports of the case studies can have vague environmental criteria that the firms claim to have used. An attempt has been made to critically examine the environmental factors and only those that are relevant and quantifiable are selected.

Another limitation of the thesis is that the Pension funds analysed are very few. A larger number would have been more interesting to analyse and made the recommendations more accurate. But the number of Pension funds in Sweden is very limited. Moreover the author has been lucky to get diverse views. Therefore the possibility of more different views limited.

Chapter 2

The traditional investment decisions of Pension funds

In this chapter the various investment factors for pension fund investments based on literature on traditional investments are reviewed, in order to assess the basic framework within which a Pension fund investor makes his investment decisions

2.1 What is an investment?

“Investment is the productive employment of capital”(Prime 1967) He has later also explained that the qualification *productive* only means the production of return on the capital to the investor and does not refer to the nature of the particular use of capital. This means that an investment should necessarily produce income and therefore investments should be considered a process with the aim of producing income/return. Thus all the actions and decisions of the investor will be directed towards producing income. Alternatively it can also be stated that the investor will take all possible actions to reduce the risk that can result in loss to capital and ensure its safety and stability, so that gain is assured. There are a number of ways and means in which an investment is made one of them is through the means of a Pension fund.

2.1.1 The Pension fund Investment

The growing increase in the shareowner ships and more sophisticated financial reporting coupled with a need for large amounts of capital gave rise to a new concentration of financial power in the seventies in the form of institutional investor's. i.e. Pension Funds, Mutual Funds, Insurance Companies, Banks, Industrial Companies. (Schmidheiny et.al 1996). The increasing ageing population of the western world has also given the Pension funds a preferred status in the institutional investment scenario. The Pension funds are unique from the other funds due to the advance commitments of the Pension payments. The long-term nature of a Pension fund is its most striking investment characteristic. Thus the Pension fund investment manager is free to make long range plans aimed at appreciation in assets as well as maximum income.

2.2 Investment factors for Pension funds

The following factors are the basis for the criteria that are taken into account for Pension fund investments. These factors are generic and apply to the investment decisions of all kinds of investments. But taking into consideration certain specific aspects of the Pension funds, emphasis is given to some factors as stated below. The factors as stated below are interrelated and influenced by each other. The criteria for any investment evolves taking more than one factor into consideration

2.2.1 Cash flows

The investment decisions of the firms are determined by the cash flows. Luenberger (1998) has defined the cash flow sequence as the amount of money that will flow to and from an investor over time. These cash flows occur at known dates. Therefore this means that the investments can be rated according to the magnitude of its cash flows. The best investment decision can be had in terms of the pattern of cash flows of different investment models. These cash flows are defined based on quantitative assessment calculations like Net present value, Internal rate of return, Payback period, Expected monetary value and Expected present value.

2.2.2 Risk Assessment

One of the more tangible elements in the financial investment model is the investigation of financial risk. Hayes (1961) states that for the purpose of functional analysis, financial risk is defined as the risk to corporate solvency which may arise from the use of senior securities in the capital structure or because of the assumption of other forms of debt. Dowrei et.al(1961) have aptly stated that an investment programme involves *balancing of return against risk*. Risk assessment ranges from an analysis of stability and growth to the variety of other factors stated in the sections 2.2.3 till 2.2.6. Thus as Elton et al (1991) have also stated the value of a firm is a function of its dividends, growth and risk. The advance commitments of the Pension fund investor makes the assessment of risk a major priority. In this connection the concept of fiduciary duty also comes up which is defined as “*relating to or involves a confidence or trust between the investor and person for whom the investment is being done for protection of the finance depending on public confidence for the value of the currency*”(Britannica online encyclopaedia 1998). Protecting the interests of the person for whom the Pension fund investor makes the investments is what will constitute his fiduciary duty. Therefore the Pension fund investor will take all possible actions to reduce the risk to his capital. The financial risk is based on a ratio analysis like the current ratio¹ which shows the relationship of current liabilities to the current assets, the quick ratio² shows the working capital of the company, or the turnover ratio³ which depicts the rate at which the expenses are turned into cash.

2.2.3 Safety

Related literature states that the safety in a security implies safety of principle and safety of stable income from this principle. But as Prime (1967) has pointed out the two are interwoven in the sense that the inability of the issuer to pay the income sadly affects the value of the principle. Therefore safety becomes a major priority in making investment decisions. “*The investors always seek security with high degree of safety adequate with relation to his circumstances and requirements*” (Prime 1967). Pension fund investors give more emphasis on the safety of the investments, as they are liable to make future payments. In order to assess the safety the Pension fund investor will assess the long-term duration of the safety.

¹ The ratio of current assets to current liabilities

² The ratio of current receivables to current liabilities

³ The ratio of cost of goods sold or expenses etc. to sales. The turnover ratio is the ratio of the rate of turnover of current item in regard to sales.

2.2.4 Growth of investments

An investment is made for appreciation. This is the growth factor. Growth or *investment for appreciation* as Dowrei(1961) has termed it involves investments in securities when the appreciation is expected to be based on increased earning power or improved financial condition. When growth of investment is an essential element or goal of investment then the investor will try to foretell the future instead of just measuring on the basis of prior records. He will try to anticipate important changes and its effect on the investment.

Literature review points that growth in values is not simply seen as a characteristic of common stocks but as a particular attribute of a relatively few expanding industries as well as of superior corporate management. Copeland et.al (1984) have stated that the search for new markets or new technologies is the basis for growth. Growth stocks are the equities of expanding firms with well defined prospects, which because of promising products or markets, successful research programmes, managerial skill, or other factors are believed to offer special assurance of continued growth in earning power and hence, market price and ultimate return. As regards the Pension fund investor the long-term nature of the investment makes the assessing the growth more important than a higher rate of return.

2.2.5 Qualitative Investment factors of the firm

The quantitative results portrayed in the financial statements of the firm are to be analysed taking qualitative factors. An investigation into the demonstrated performance of the company as revealed by the financial statements can be the major basis for the measurement of the values of securities. Therefore the pension fund investor will analyse the Balance sheet , Assets and the cash flow statements of the firms in order to assess as Hayes (1961) and Prime (1967) have analysed

Future sales revenue

As Hayes (1961) has stated “*an appraisal of the underlying demand characteristics for a companies products is a necessary feature in determining investment quality*” Logically speaking the trend of the sales of the products will follow the same trend as the growth of the company. Therefore from this perspective Hayes is correct. But time, as a factor in considering future sales revenue should also be taken into account. Changes in consumer preferences will also have to be anticipated in the longer-term perspective.

Cost and production factors

The cost patterns of industrial firms comprise of varying amounts of raw materials manufacturing and administrative expenses as also interest, taxes and insurance. Superficially these expenses seem not to contribute to the evaluation of the company for investment purpose but these production factors will: -

- Identify potential risks in production flow,
- Include the adequacy of raw material reserves in natural resource companies and ,
- Identify stability elements in the nature of demand

Market conditions

Apart from internal factors like sales and production the market conditions for the sales of the product line is an important area that can help identify potential investment risks. Hayes states that an analysis of the competitive edge and competitive advantage will identify the pressures in the free market (for the particular firm) as also the incentives for growth. This statement can also mean that

- An analysis of the ability to cope with competition will identify the stability factors
- If the firm is able to steer and maintain its position without major changes in the price of the product the firm has a good reputation.
- A deeper analysis will lead to an identification of the negative /positive factors of the internal management involved with research and development, distribution methods and production techniques.

If one does go into a qualitative appraisal of the actual and prospective competitive conditions faced by the firm, it would be advisable to avoid a company with intense competition but on the other hand if this appraisal identifies a strong and effective management dealing with the competition, it will result in the identification of a crucial positive factor for the investor.

2.2.6 Quantitative investment factors

The major quantitative facts of a firm are contained the conventional financial statements. But an important aspect to be noted in the appraisal of the quantitative data is that these statements portray the financial status of the past and the investor should analyse the effect of the financial statements on the future economic activities of the firm. In other words the financial statements could reveal the future risks and opportunities in the firm. Hayes (1961) introduces the functional approach of quantitative analysis in which he states that the investor should first identify *what specific factors are pertinent to a quantitative investment appraisal of the company*. The analytical financial framework is then developed accordingly. This will result in a more clear cut review of the strengths and weaknesses of the firm. The quantitative data attempts to help reach a decision on the following grounds: -

- The prospects of long term growth or decline of the firm
- The stability characteristics of the firm
- The absolute and relative capacity of the management.
- The degree of financial risk arising out of the particular means used to finance the resources of the company.
- Depending on the accuracy of the company the financial statements reveal the economic performance and the per share equity of the shareholders
- If the securities are compared with the existing high general standards their quality can be ascertained
- The relative adequacy of the yield and technical position of senior securities at their prevailing prices can be found out.
- The alternative possibilities of the future per common share earning power of the company.

- The probable range of values will thus be revealed based on the earning power estimates, dividend policy, alternative yields and overall quality of the company.

Thus this chapter helps in giving an overview of the considerations that are taken into account in making an investment decision for Pension funds. The next chapter will critically analyse the *environmental* investment decisions

Chapter 3

Factors for environmental improvement

This chapter will critically analyse the various environmental factors used for environmental investments and arrive at simple, relevant, proven and quantifiable criteria for environmental investments.

3.1 Reasons for incorporating environmental factors in the investment decision making

First it is necessary to know why an investor should consider environmental factors. Different forces in the past, production pressures, personal pressures, and more lately information pressures have driven corporate strategy (Welford et al 1996). The latest trend in this direction is the environmental pressure that is defining the business activities in firms. The following are the various pressures that are governing the environmental performance in the corporate sector.

- Demands by regulators and other government agencies
- Public concern about risk to public health and safety
- The desire of investors and lenders for reassurance that their financial interests are not jeopardised by environmental problems.
- Pressures from industry associations and business sources to improve performance.

The different pressures on corporate sector to improve their environmental performance. (The Canadian Institute of chartered accountants 1994)

Taking the above pressures into considerations the corporate sector is incorporating environmental considerations. On the other hand the same trend is not observed in the investors decision-making (Schmidheiny 1996, Delphi 1997, Murray 1998). It is necessary that now considering the trend it is time for the investors to also take environmental factors into account as what effects the financial decisions of the firms will also affect the investment decisions of the investors in these firms. For this purpose a review of various environmental investment decisions is done with the objective of integrating them in the financial criteria.

3.2 The current status of environmental investments

The various environmental investments of environmental funds and environmental screening criteria were reviewed in order to look into the various environmental factors that the green investors consider.

3.2.1 The environmental investment factors of environmental funds.

. A look into the various environmental investment factors of environmental funds (federation of Swedish industries 1996) also attached in appendix 4, revealed a complex list of negative and positive criteria. The typical characteristics of these factors are as follows:-

- The environmental criteria of environmental funds are many (*around 50*) and seem to be interrelated and overlapping. In the absence of quantified proof it is difficult to assess which is more important than the other.
- There is lack of authentic and credible information about the environmental funds. For eg. Some environmental funds give about 2% of their profit to an environmental cause, but their investment criteria do not have any environmental criteria (Skillus Åsa 1998).
- Many environmental funds have environmental criteria, which are of a short term in nature. They are trying to cash in on the present green demand. Therefore the long-term nature of these demands is a controversial issue. As the review of environmental funds by the federation of Swedish industries (1996) on about 60 environmental funds in the US and Europe also concludes the boom in environmental funds as seen in the early 1990's is over for now.

There are other ways of assessing environmental investments too, which have been compiled as follows

- *Environmental impact-* emissions, use of natural resources, disaster risk.
- *Logistics-*Methods of transporting personnel, materials, and finished goods.
- *Infrastructure-*Construction of buildings,equipment.
- *Ecological profile of products.*
- *Compliance with environmental laws and guidelines.*
- *Environmental risks from research and development.*
- *Management-*Delineation of responsibilities,qualifications,allocation of resources.
- *Soft issues*

The Investment criteria of Eco-rating international Switzerland (Harrison 1993)

In this case it is difficult to assess the exact definition of soft issues and ecological profile.

Another group, the Investor Responsibility Research Centre, uses the standard and Poors Directory to assess listed corporations, rating them on six environmental factors as follows

- Environmental disclosures in securities filings.
- Liabilities resulting from past contamination sites
- Reports of accidental spills of oil or chemicals
- Estimated routing emissions of toxic chemicals
- Environmental enforcement actions under nine environmental statutes that resulted in monetary penalty assessments
- Companies descriptions of their environmental policies and programmes.

The environmental factors used to assess the risks by the Investor Responsibility Research Centre (Harrison 1993)

On the other hand Storebrand, Norway's leading insurance company together with the US based-based investment management firm, Scudder, Stevens & Clark, launched the Storebrand Scudder Environment value fund in 1996 (Blumberg et al 1996). According to Blumberg et al (1996) this fund ranks in the top 20 percentile among global equity funds. Their environmental criteria are as follows: -

- Energy efficiency
- Global warming contribution
- Ozone depletion impact
- Material efficiency
- Product characteristics
- Quality of environmental management
- Toxic emissions
- Water use
- Environmental liabilities

The environmental investment factors of Scudder Environment Value Fund (Blumberg et al 1996)

3.2.2 Conclusions drawn from the review of various environmental factors of environmental investments

As can be seen the various environmental factors of the environmental investments are too overlapping and repetitive. There is a possibility of categorising them into generic categories. Moreover these factors are for the environmental funds which have adapted their decisions for sophisticated tools. On the other hand the environmental investments that this thesis is looking for should be simple for traditional investors who do not have any tools to assess environmental performance

at present. Looking into the environmental factors of environmental investments in firms from where in the first place all the factors are extracted could only do this. Therefore environmental investments from sustainable enterprises were extracted. But again first it is essential to know what a sustainable enterprise is.

3.3 The sustainable business enterprise.

All the firms that incorporate environmental factors in their business decisions state that their goal is to achieve a sustainable business enterprise. According to Huisingh (1998) a sustainable business enterprise means adopting business strategies and activities that meet the needs of the enterprise and all its stakeholders today while protecting, sustaining and enhancing the human and natural resources that will be needed in the future. But this definition of being an environmentally proactive firm is very vague. One reason could be that the concept of sustainable development can say everything but at the same time could also mean nothing concrete or specific. And therefore when an investor is looking in the business plan under the term sustainable development then he should be aware that the sustainability vision which the company has includes according to Hart (1997) a

- Corporate vision directed towards the solution of social and environmental problems and
- Corporate visions which guides in the development of new technologies, markets, products, and processes.

If the above two conditions are satisfied only then the concept of sustainable development in the corporate goal is met. Taking this definition of a sustainable firm the environmental investment factors are extracted as follows

3.3.1 Rational behind extracting the factors from firms

In order to extract environmental factors for investment decision making of Pension funds a parallel decision process is analysed. In both the cases (Pension funds and environmental investments of the firms) the investment decisions are focussed at business interest that could be direct returns in terms of finance or some indirect returns in terms of increased market share and better image.

The environmental factors have been extracted from World Business Council for Sustainable development publications Blumberg et al (1996) and Signals of change (1996). They have published case studies of around Twenty-one multinational corporations that have used various factors to improve their environmental performance. These environmental factors are identified after a critical analysis as to its relevance and quantifiability. For example if a firm states that they are taking ecological considerations in their business decisions and what constitutes these ecological considerations was not specified then the factor is not taken.

The case studies are in the form of a summary report of each firm as to what they have achieved in respect of environmental performance and how they have gained in

their business ventures due to these considerations. The factors as stated in table 1 are extracted from these summary reports.

Each factor chosen is based on a critical analysis of its role in improving the environmental performance of the firm. The factors are also extracted after considering the environmental factors of environmental funds as done in the review of the funds in section 3.2.

Unless the firm specifies any of the following characteristics as stated in the following factors that particular factor is not taken as met. The explanation as to what each criteria means is taken not only from the case studies but also in order to verify its relevance on environmental performance compiled from (Huisingh .D 1998, Cook : K 1998; Lindquist 1998, Brophy :M 1996, Vaughan 1993, Stahel 1998). The following are the factors and what each factor means

Resource conservation and waste reduction in volume and quantity

This factor means that the firm uses renewable resources and takes active steps to reduce /minimises the waste that they produce and dispose waste with minimal impact on the environment. This factor also means that the firm in question is conserving energy in its production process or producing products that use less energy than they did before. This environmental factor helps in reducing costs in production process and can also be used as a marketing strategy.

Proactive Management

A management that is taking steps to include environmental factors that are not required by compliance is termed as proactive management. This means that the management in question has environmental management systems, environmental auditing, environmental risk assessment procedures, is taking active steps to reduce its environmental liabilities over and above the regulations required and emphasises on continuous environmental improvement is made. In addition it may also include those firms that are using tools that include longer time horizons and evasive future damages and costs. For example British gas has calculated external costs of petrol, diesel, and natural gas when used as fuel for rural and urban areas. This factor helps in getting a competitive edge in the market. Though this factor is an overall environmental factor governing other factors it can stand independently too as the cause of better environmental and financial performance.

Transparency of communication

Publishing environmental information in the annual reports, publishing separate environmental performance reports, educating the general public about the environment constitutes transparency of communication. This factor helps in improving the image of the firm.

Use of renewable energy and materials

This factor constitutes use of renewable energy and materials in its production process or production of renewable energy or materials by replacing a non-renewable

component. For example Danish steel uses renewable steel as its raw materials. This factor has helped these firms to reduce costs as well as have a new emerging market especially if they are producing renewable energy.

Ethical issues

Though this factor is not an environmental factor it is still taken because ethical issues are increasingly becoming important. This factor means that the firm in question deals with worker satisfaction, worker health and safety and favourable working conditions. This factor helps in getting a motivated work force as well as a positive image.

Research and development for the environment

This factor means the firm is active in or supports the development of products and processes taking environmental considerations. The outcome of this research will help them achieve a new market.

3.3.2 Methodology for Ranking of the environmental factors

The method used to rank the environmental factors is as follows

- The first step has been to categorise the companies under the sectors they belong e.g. Energy sector, pharmaceutical sector etc. Companies, which do not fall in any of the sectors, have been classified as other firms. In this way we have 6 categories.
- After each sector was complete the environmental factor is taken as **included or as not included in the firm.**
- In the case of the financial sector the environmental factors mean those that they use for external investments.
- Then the factor is ranked on the number of times it occurs in the whole table. The most common factor is ranked as 1 and the least common as 6.

Thus by applying the above methodology in the matrix presented in table 1 the factors are listed.

Names of firms	Environmental factors used					
	Transparency of communication	Use of renewable energy and material	Proactive Management	Ethical issues	Resource conservation and waste reduction in volume and quantity	Research and development for the environment
Energy sector						
British Petroleum		x	x			
Ontario Hydro	x	x				
Tokyo elec. power Co.	x	x	x			
Shell	x		x			
Power gen			x	x		
British Gas	x					
Chemical Sector						
Ciba	x	x	x		x	
Dow chemicals	x	x	x		x	
Neste	x	x			x	
ICI	x		x	x		
Engineering sector						
Danish Steel works	x	x	x		x	
Kvaener		x	x	x	x	
General Motors		x		x	x	x
Pharmaceutical Co's						
Hoffman – La Roche		x			x	

Novo Nordisk	×	×			×	×
Financial sector						
Storebrand	×					
Swiss Bank	×					
Other firms						
Bröderne Hartman	×	×	×		×	
Du Pont Agricultural Products		×		×	×	×
Du Pont Films		×			×	
Sony		×				×
Total	13	14	10	5	11	3
Final rank	2	1	4	5	3	6

Table 1 ranks the environmental factors used to improve the environmental performance by the firms

3.4 Will this information be of importance to the Pension fund investor?

As it can be observed above, the environmental factors used to achieve better environmental performance affect each part of the business activity of the firms like production, management, research and development. As has been stated in chapter 2 the investment factors involve an analysis of each business activity in the firm. Moreover as Johansson et al (1997) have in their study of investment revision variables shown that Investment revision variables are basically wages, material, electricity, fuels and cash flows. This means any activity in the firm that affects these variables should be known to the Pension fund investor. Hence the demand for relevant information on the part of the investor is justified.

Thus based on the environmental factors a checklist for the Pension fund investors can be stated as follows:-

<i>Environmental factors</i>	<i>Rank</i>
Use of renewable energy and material	1
Transparency of communication	2
Resource conservation & reduction of waste in volume and quantity.	3
Proactive management	4
Ethical issues	5
Research and development for the environment	6

Table 2 Summarises the environmental factors that influenced environmental investment decisions in firms

3.5 How to use this information?

Though the above environmental factors improve environmental performance this checklist will not help the investor in knowing their presence in the firm unless he can measure them. Therefore in order to measure the above factor the investor will have to check their presence as stated in the table below. Though these criteria are simple to measure and be assessed by the investors, it is not expected that the investors are presently using them in their analysis, hence they were not included in the study to this level of elaboration. These measures are derived from a comprehensive list of environmental indicators (draft) as generated under the project “Cleaner technology performance indicators funded by DG XII, EU, Brussels 1997).

<i>Environmental factors</i>	<i>How to measure the factors</i>	<i>Quantitative</i>	<i>Qualitative</i>
Use of renewable energy and material	Renewable fraction (percentage) of total material and energy used	X	
Transparency of communication	Availability of the environmental reports with specific information (as stated in section 4.1.2)		X
Resource conservation & reduction of waste in volume and quantity.	Frequency of energy of material audit conducted Percentage of waste volume and Quantity generated as against previous years (or previous x years)	X	X
Proactive management	Environmental policy and management systems in place with specific time plans and compliance with it. Percentage of total budget spent on environmental protection including education and human resource development. Man years spent on environmental protection	X	X
Ethical issues	No of sick absentees Quality of working environment	X	X
Research and development for the environment	Amount of R& D budget spent on the environment	X	

Table 3 lists the measurable environmental criteria for investment decision making.

These environmental criteria will be integrated with the financial criteria in the next chapter

Chapter 4

Environmental investment for pension funds

This chapter will analyse the motives and barriers in incorporating the environmental criteria in chapter 3 to the pension fund criteria for investments stated in chapter 2.

In order to integrate the environmental factors with Pension fund investments first the barriers in doing so are analysed in order to see whether they can be overcome.

4.1 The barriers in incorporating environmental factors in investment decisions.

Delphi (1997) and Schmidheiny (1996) state three main barriers in incorporating environmental factors in investment decisions. The first is proof that their financial performance will increase the second is need for relevant information and lastly where to find the relevant information. The need for relevant information is justified and also after an analysis provided in chapter 3. The other two barriers are analysed as follows:-

4.1.1 Can Environmental factors influence financial performance?

Literature in this regard was looked into to find whether this correlation exists. Literature is either from an investor's perspective in measuring financial performance or the corporate sector perspective. It was observed that the investor's perspective in measuring environmental performance in relation to the financial performance was more inclined towards future gains and the corporate perspective was more inclined towards reducing costs.

Although as Blumberg et al (1996) also state the body of evidence that supports that better environmental management can increase shareholder value is not large there are some studies conducted from the investor's perspective in this regard. A study into the financial performance of a comprehensive list of companies, the standard and poors 500 was made by Cohen et al. (1997). This study concluded that better environmental performance has been an influencing factor in increasing the shareholder value of these companies. Another study by Ljungberg (1996) on the performance of environmental funds from an investor's perspective also concludes that environmental performance is not in conflict but in conformity with financial performance. From the investors perspective Blumberg et al (1996) based on empirical studies done by investors state that the environmental factors are increasing the value of their capital. Loch et al (1996) on the empirical study of pollution prevention firms established that the investors are inclined to invest in these companies due to their high growth rate. But this estimated growth is based on past records of small time periods. On the other hand any investor chooses to invest only after he compares it with other investments and observes a better return comparatively. Therefore his decision is based on a hope for better financial return.

Repetto et al (1995) have also analysed the effect of environmental factors on productivity to conclude that productivity is not reduced when environmental factors are considered. But they advocate a change in quantifying techniques to incorporate environmental externalities. Murray et al (1997) also cite research evidence that indicates a positive relationship between firm profitability and environmental performance.

On the other hand the main proponents of establishing a correlation between financial performance and environmental performance are the corporate sector. By implementing the Eco efficiency criteria they have gained financially (Schmidheiny et al 1996, signals of change 1996). The Report by Delphi (1997) for the European commission also states that environmental performance does contribute to better financial performance. The evidence that they base this conclusion on is also the Eco efficiency criteria which deals with as stated below:-

- Reducing the energy inputs to and requirements of, goods and services
- Reducing toxic dispersion.
- Enhancing Material recyclability..
- Maximising sustainable use of renewable resources.
- Extending product durability

The Eco efficiency criteria as stated by the world business council for sustainable development (Blumberg et al 1996)

But results of Eco efficiency at present is only visible in those companies where stringent regulatory compliance made them adopt it in order to reduce their increasing environmental costs. Thus the conclusion is drawn from a small number of studies.

Vaughan (1993) based on a survey of companies in Europe concluded that the potential opportunities from environmental constraints are considered to be cost savings from reduced input and wastes, marketing of environmentally beneficial products, process and service and benefits of a clean and green image and stock market ratings. But then these opportunities are considered potential and not actual.

Thus the available literature that establishes a direct correlation is very little to come to a conclusion that a direct correlation exists. Even though some researchers do come to a conclusion that establishes this correlation they base it on cited literature or a change in quantifying techniques. But what they do emphasise on is the fact that this correlation is possible in the future.

Therefore based on the above it **cannot** be said with certainty that by integrating the environmental factors to the investment criteria of the pension funds the pension fund investor will gain. On the other hand available literature does not state that environmental performance will decrease financial performance. Moreover considering the trend towards sustainable development the investor can choose to improve the environmental performance of his investments by such integration. By

doing do at least he will not be losing anything as his risk assessment procedures and priorities will remain the same.

4.1.2 How flow of information can be efficient

An environment information instrument is defined as any environmentally oriented measure that help provide a better understanding of the microeconomic or macroeconomic consequences of environmental problems (Figge 1998). Cooke (1994) has in his study of what constitutes appropriate environmental information for investors concluded that the corporate environmental report was *not an appropriate* channel for conveying the environmental information. He has further stated that apart from financially based information there is also a need to convey non-financially based information and this, investors feel is not effectively communicated to them. The company's annual and quarterly reports could have the relevant environmental information in the form of updates and summaries as a means of communicating relevant quantitative and qualitative environmental information. Cooke (1994) has also suggested that the flexibility offered by the voluntary disclosure of environmental information can act as an ideal instrument for improving information flow to the stakeholders.

In this way the financially based details relating to the environment such as the environmental expenditures and operating costs, fines, write-offs, provision for environmental liabilities, savings and cost cutting measures arising from environmental- related actions should be clearly stated in the quarterly and annual financial reports of the company. The capital markets could also be considered as an excellent system of information sharing (Schanzenbäcker 1998).

4.1.3 Dependent Barriers

As far as the communication creates positive image on the target groups as a result of its positive and negative accounts the firm will continue to be transparent. The moment negative accounts start to increase the firm will tend to be less transparent. Thus information flow is dependent on the effectiveness of positive environmental performance. This fact can help the investor get information about positive environmental achievements easily.

4.2 Motives for integration

Schmidheiny et al (1996) have in their survey regarding incorporation of environmental issues in investment decisions for Pension funds, found that the Pension fund managers are being pressurised by their clients to invest in companies, which do not misuse the environmental resources. But most of them give the reason of it being bad business. Some of the clients do not want their retirement money to be used to destroy the environment on which their offspring will depend.

From the fund managers perspective the problem is not only the expectations of each client (who are the owners of only a small fraction) but also to outperform an index. They have to have their financial interest first and their investing rules do not provide for any environmental or ethical screening (unless specified otherwise) as also seen in chapter 2. But on the other hand they also would like to avoid embarrassing situations

by pressure groups. There are other aspects too that favour the integration as suggested

4.2.1 Similar investment criteria

Most of the Pension fund managers are of the opinion that environmental screening can be incorporated in the investment strategy if and only if they were relevant to long term investment performance (Schmidheiny et al 1996). The nature of the liabilities of the pension funds as we have seen is long term and therefore the nature of their investments should also focus on the long-term performance of the industries. Environmental changes in the economy also need solutions that are based on competition rules of the market economy based on long-term profits (Niemczynowicz J.1994). A survey conducted by the pension fund panel of the Nottinghamshire county Council (Delphi 1997) also found that there was a significant link between the environmental issues and a companies Long- term performance.

When we speak about investment factors specific to Pension funds then we are talking about long term growth potential, a steady rate of return and minimum financial risk.

Sustainable development is perhaps the ultimate long-term issue. And therefore when we speak of environmental investments we are also speaking in terms of growth potential albeit after a certain time period (refer section 4.1.1) and though it cannot be positively stated that environmental investments reduce financial risk and provide a steady rate of return, the nature of environmental investments is such (of reducing liabilities in the wake of regulations etc) that a possibility of low risk and steady returns is high.

4.2.2 Shareholder activism

The other motive is the concept of shareholder activism. Though shareholder activism is common in all kinds of investments, lately the individual investors have become frustrated with indifference of the investing institutions towards sustainable development and are taking their concern to large companies (Scheidheimeny 1996). In this way the cumulative power of common people can be put to use in refreshing the markets towards change for a better world. The individuals as investors would be very interested in *green financial products* particularly if there were no harm to investment returns. This will give them opportunities to consider options, which aim to have more positive environmental consequences. But the issue is complex because the collective nature of the investments makes individual choices more difficult to implement. But once the individual Pension fund subscribers are aware of their power and the effect of investment decisions taken on their behalf, they can play a far more active role in the workings of the financial markets.

4.3 Criteria for improving environmental performance of Pension fund investors

Based on the discussion on motives and barriers in incorporating environmental criteria into the financial criteria it is observed that though it is still debatable whether financial performance will improve literature indicates such a possibility in the future.

This is compatible with the long-term plans of the Pension fund investor. Moreover increasing shareholder pressure can make them improve their environmental performance from a strategic management viewpoint. Therefore they can choose to improve the environmental performance of their investments by choosing the criteria stated in table 3.

4.3.1 The integrated criteria model

First the investor will take into consideration the financial criteria for Pension fund investments. These criteria are **Steady rate of returns, Growth potential, minimum financial risk and an effective business plan.** These criteria are based on the discussion of the factors of investment in chapter 2. After these criteria are met then the environmental criteria's as discussed in chapter 3 (table 3) can be used. Thus the integrated model for environmental investments will look as follows: -

<i>Environmental Investment criteria</i>	<i>Qualitative</i>	<i>Quantitative</i>
Steady returns		X
Growth potential	X	X
Minimum Financial risk	X	X
Effective Business Plan	X	X
Renewable fraction (percentage) of total material and energy used	X	
Availability of the environmental reports with specific information (as stated in section 4.1.2)		X
Frequency of energy of material audit conducted Percentage of waste volume and Quantity generated as against previous years (or previous x years)	X	X
Environmental policy and management systems in place with specific time plans and compliance with it. Percentage of total budget spent on environmental protection Man years spent on environmental protection	X X	X
No of sick absentees Quality of working environment	X	X
Amount of R&D budget spent on the environment	X	

Table 4 Summarise the integrated criteria model for environmental investment decision making based on the analysis in chapter 2 and 3

The criteria developed above will be used to make the empirical study in chapter 5.

Chapter 5

Analysis of the case studies

This chapter compiles and analyses the information gathered through questionnaire surveys and interviews from eight organisations that are involved directly or indirectly in the investment decisions for Pension fund investments in Sweden

5.1 The pension funds studied

The Pension funds studied are all located in Sweden. The major Pension funds dealing with the pensions of the trade unions and the municipalities in Sweden were studied. The trade unions and the associations of municipalities are also the owners of these Pension investment companies and the shareholders as well. Their views are also studied. Information about Pension reforms and Pension System in Sweden is attached in Appendix 1. Details about the organisations studied are attached in appendix 2 The questionnaire is attached in appendix 3

5.2 The investment Strategy for Pension funds in Sweden

The survey was conducted first by a questionnaire (attached in appendix 3) followed by a telephonic interview. Wherever possible the annual reports of the companies, which were, interviewed, were also studied. In the case of Folksam and SPP only the annual reports could be studied, as these insurance companies did not answer the questionnaire. Survey on the other organisations like the county councils (kommuns) and the trade unions were either conducted through e-mail or through telephonic interview. The following results were the outcome of this survey.

5.2.1 Investment criteria

Only four organisations were willing to give the investment criteria on rank basis. This criteria is ranked in table 5. It should be noted that some of the organisations were not willing to give their criteria on rank basis. The reason for this being that Investment and portfolio analysis is a long process involving confidential information. This was especially true in the case of Central labour organisation (LO) which manages the pension funds for SAF and Folksam. The reason was that, as LO has the full authority to make the investment decisions of two different organisations with similar interests. Therefore they believed that it would be appropriate to gather information from these organisations themselves.

. The other reason is the heightened competitive market for the institutional investors for Pension funds. From the autumn of 1998 Swedish citizens will be able to choose their own Pension fund investor. Therefore this is a very busy time for all the investors as they are readying themselves for the new competition.

The theoretical model was tested by giving them to the organisations. Only four organisations ranked it as in the table below.

The other organisations and their investment strategy are included in the analysis after the table. It should also be noted that the investment criteria ranking is 8 as least important and 1 as most important. The organisations have not ranked the criteria that they do not consider.

<i>Name</i>	<i>KPA</i>	<i>AMF</i>	<i>FKF</i>	<i>SVEKOM</i>
Value	6.5 billion SEK	135 billion SEK	Not applicable	Approx 3-4 billion SEK
Rate of return	10-15%	17.5% ⁴	Not applicable ⁵	Not applicable ⁶
<i>Investment criteria</i>				
Steady returns	2	1	2	2
Growth potential	2	1	2	1
Business plan	2	2	2	2
Proactive Management⁷				
Ethical considerations	1	3	4	2
Transparency of communication				
Resource conservation and waste minimisation				
Use of renewable energy and material	1	2	3	4
Research and development for the environment				

Table 5 Ranks the investor's criteria for pension funds based on the survey conducted

5.2.2 Assessment of risk

All the investors' view Long-term risk as the main risk when asked about the nature of risk which is most difficult to recover. The risk due to unethical investment considerations resulting in negative publicity was another major risk identified. KPA and AMF as well as the trade union TCO agreed that the subscribers demand ethical considerations. Especially investments in certain countries are specifically screened to avoid any unethical cause.

⁴ For the year 1997-98

⁵ They do not invest the fund themselves they are in an advisory position for the insurance companies

⁶ KPA invests for the Swedish Kommuns

⁷ They consider an efficient management but do not go into a proactive management.

But the definition of ethical considerations is limited to working conditions. The exception in this case is KPA. KPA has a formal ethical and environmental screening process. They do not invest in companies dealing with tobacco, alcohol and arms and nuclear energy.

5.2.3 Customer Demands

According to KPA about 50% of their customers demand ethical and environmental investments. They have made a research on the demands of their customers. Their investment decisions are based on the demands of their customers'. For example, they specifically invest in companies with equal rights for workers especially on demand by the female pension owners. If demands by shareholders are made the investors readily comply. But in the case of all the other organisations there was no specific demand of any kind by the shareholders. Some of the trade unions (which are also the owners) are demanding ethical investments. But this demand seemed more towards a preventive approach to avoid negative publicity rather than being a proactive approach towards making an effort for ethical investors. On the other hand the risk manager in KPA said our customers are willing to accept a little less rate of return if the investments are ethically/environmentally screened but they also believe that in the long run these investments are going to grow.

5.2.4 Environmental investments

Apart from KPA no other investor has a specific approach towards environmental investments. The reasons could be also as the chairman of the Kalmar county council for Pension funds stated that it is the companies that should worry about the environment if they want to survive in the long run. Then another reason could also be as the chief investment officer of AMF said that in the face of so many strict environmental regulations especially in developed countries there was no reason for environmental screening as it can be safely assumed that all the companies will be environmental friendly. But all the investments of AMF are not only in the developed countries. Another interesting observation was made by the trade union organisation TCO that if strict rules relating to environmental investments were set then investments in most of the companies will not be possible (for example one will not be able to invest in an oil company because it pollutes!). Therefore they consider environmental investments as a positive approach for rewarding companies who are into proactive environmental work. SAF also believes that though growth oriented investments are the main priority environmental investments will result in long term growth of the investments. SAF was of the opinion- *“However, profit maximisation is obviously the goal for fund management. It is, however, also obvious that environmental criteria play a role together with other criteria when choosing shares in which to invest, in the sense that a company that takes environmental regards in its activities is often more likely to be profitable in the long run”*

As most of the Pension funds companies are also insurance companies they have a formal environmental risk assessment process. Folksam publishes an environmental report and so does KPA. But the environmental report of Folksam dealt with the reduction of risk in the case of insurance liabilities and did not specify proactive environmental investments, as did KPA. But again the environmental criteria of KPA were not specific. They had it in relation to ethical criteria. Environmental

investments as regards renewable energy was popular especially wind energy. So was the prospect of a market edge in environmental products and services.

5.2.5 Liquidity /marketability of the pension fund investments

Based on the literature review it had been stated that due to the fact that the Pension funds payments are made at known time periods the investors do not have to worry about liquidity or marketability of the Pension funds investments. But the survey revealed otherwise. For any investment to grow the proper time to sell and buy it has to be always taken into consideration in the ever-changing financial markets. Except in the case of investments in bonds where liquidity time periods have to be strictly followed the other investments are made for growth and not only payments. The average period for an investment was five years.

5.2.6 Bottom up and top down communication

Bottom up communication is defined in this case as the channel of communication between the Pension owners and the Investment Company. This channel of communication is very much open and receptive from the investors side but the shareholders are not much inclined to make use of this communication channel. On the other hand the top down communication channel between the owners (municipalities or trade unions) and the investors is limited to periodic meetings where emphasis is made on ethical considerations in investment decisions. They do not go into the details about the investment decision-making (as told by SAF part owner of AMF) but are more interested in the results that need to be achieved. Interestingly the members of these municipalities and trade unions are also the shareholders of the Pension funds. So it is more of a circular flow of communication where the shareholder demands are communicated from top down.

5.3 Reasons for difference in theoretical and empirical analysis

As has been observed though the theoretical analysis for integrating environmental concludes that the integration as proposed is possible the empirical study has revealed the possibility of such integration as very limited.

This difference proves that the traditional investors do not realise the impact their decisions can have towards sustainable development. But on the other hand they are bound by their fiduciary duty and proof that environmental performance increases financial performance is still debatable.

But strangely enough the shareholders realise the influence of environmental considerations on the long-term growth potential. Trade unions TCO is working in this regard. Trade union SAF thinks the same way. The shareholders of KPA too share the feeling that environmental considerations result in long-term profits. On the other hand the pension fund investment decision-makers believe that the shareholders are satisfied with the present performance. They do not believe that the shareholders are demanding any changes. So there could be a communication problem. Like KPA has done the other investors could also make a research on their customers demands. But even after knowing the demands of their customers KPA has not taken a major

step in this direction. Their environmental criteria are very limited at present. On the other hand environmental awareness influencing the demands of the consumers is still a debatable issue. Vaughan (1993) believes that the consumers' demand for green products is superficial. They are still not ready to trade-off their financial gains for environmental benefits. But when it comes to ethical issues they are ready to make this trade-off. The reason could be that ethical issues satisfy the altruistic sentiments of an individual but this satisfaction is not had with environmental issues.

Environmental awareness has still to mature fully to make the shareholders demand the same way about environmental investments as they demand ethical investments.

The other reason could be the Short-term Vs Long-term conflict. As we know environmental investments take a long time to show their results. But the Pension funds investors are not making their investments in a longer time horizon. Hemlin et al (1992) based on their literature review have also pointed out the major drawback in any financial investment model is the short term profit view that is predominant. Quoting other researchers they have pointed out that those responsible for profits can, in order to meet short-term profitability targets, accomplish this by reducing or fully refraining from growth oriented⁸ investments. But for the investors to increase their time horizon of the investments they need to have effective information instruments. And as we have seen environmental reports are not considered as effective instruments by investors at present (section 4.1.2). So environmental information has to be made more effective.

Another fact is that the environmental criteria have been extracted from environmentally proactive firms. And all the firms that a Pension fund investor invest in could necessarily may not be as proactive as the sample of case studies that has been looked into.

Thus it can be concluded that the lack of communication and right information and to some extent even lack of the environmentally friendly firms is the cause of difference in the theoretical and empirical studies.

5.4 Conclusions drawn from the empirical study

In conclusion it can be stated that the Pension fund investors are less inclined to use environmental issues in their investment process. They believe their performance is satisfactory to themselves and their stakeholders. Therefore it can be said that relative pressure from all areas is not that high. Even in the only Pension fund that had environmental investment the actual definition of what constitutes environmental investment was not specified. Therefore for the traditional Pension fund investor, motivation to improve the environmental performance of their investment is very little.

⁸ Growth oriented investments have been termed as *regular determined expenditure for the creation of new products, development of processes, preventive investments in maintenance, Long term market research, education of employees and other such that can generate revenue in the future* (Hemlin et al 1992).

Chapter 6

Conclusions and Recommendations

Conclusions that have been drawn from the analysis of the theoretical and empirical study are summarised in this chapter.

6.1 Conclusions

An overview of the environmental factors in various environmental investments revealed that the environmental factors were complex, and overlapping with each other. Hence there was a need to have a simple set of relevant, quantifiable and proven factors. Therefore the six most widely used environmental factors in the corporate sector to improve environmental performance have been chosen. They affect each of the investment factors of Pension fund investment. This means the Pension fund investor should know any activity in the firm that affects the investment factors. Hence the demand for relevant information on the part of the investor is justified and should be provided.

Based on the discussion on motives and barriers in incorporating environmental criteria into the financial criteria it is observed that though it is still debatable whether financial performance will improve, literature indicates such a possibility in the future. On the other hand there is hardly any credible literature encountered during this research on environmental performance that shows a decrease in financial performance. Therefore if the investor chooses to improve his environmental performance he has hardly anything to lose. Both the barriers, need for information flow and proof of increase in financial performance seem to be interrelated. Therefore if the investor is interested in improving his environmental information there is a possibility he will find positive information if he looks in the right places. Moreover similar investment criteria of pension funds and environmental investments aiming at long –term outlook make them compatible to each other.

The empirical study revealed that the Pension fund investors are less inclined to use environmental issues in their investment process. They believe their performance is satisfactory to themselves and their stakeholders. Therefore for the traditional Pension fund investor, motivation to improve the environmental performance of their investment is very little.

The reasons for difference in the theoretical and empirical analysis can be said to be due to lack of proper information about the environmental factors on the part of the Pension fund investors, Lack of awareness on the part of the stakeholders, weak communication flow between the shareholders and the investors, a short time horizon in making the investment decisions and lastly maybe a less number of environmentally proactive firms.

Thus in the wake of a lack of any pressure the Pension fund investors are not inclined to use environmental perspective in their investment decisions. Therefore an approach

from the environmental perspective to make them change their traditional investing decisions attuned to environmental considerations would receive limited acceptability. At the same time it is indisputable that they are in an ideal position to lead the way towards sustainable development.

Related literature also points anecdotal evidence that although financiers acknowledge the potential benefits of environmental information, many believe they do not have adequate data to make sound decisions. Theoretical evidence further suggests the investors do not know where and how they can get the relevant data to integrate environmental performance in their investment decisions.

Thus the need of the hour is to provide the investors with simple solutions that are within their framework of investment decisions. This way the investors will be relatively inclined to use a tool that is taken from an investor's perspective. Moreover they will only need to make minor changes in their traditional approach. This is where the relevance of a research as done above comes out. The tool suggested is simple and easy to use as it recommends very few changes that will have to be made.

Thus for the beginning a simple tool is suggested to the Pension fund investors. It is always recommended to promote easy and simple measures at the first stage in order to promote any concept. This in turn will create an internal demand which in the longer time perspective evolve into more sophisticated approaches towards environmental issues in the investment decisions.

6.2 Recommendations on how to use the tool developed

The objective of the thesis was to develop a tool that integrates environmental and financial criteria for improving environmental performance of Pension fund investments. Therefore in this regard a simple tool is developed. Due to the absence of any interest on the part of the investors in the empirical study no changes are made in the theoretical model. The Pension fund investor will not have to do any environmental screening instead an integrated qualitative and quantitative screening is suggested

First the Pension fund investor could use qualitative environmental and financial criteria to screen the investment. Then based on the quantifiable criteria decisions can be arrived at.

Thus the model is as follows:

<i>Qualitative Environmental Investment criteria</i>	<i>Quantitative Environmental Investment criteria</i>
Growth potential	Growth potential
Minimum Financial risk	Steady returns
Effective Business Plan	Effective Business Plan
Availability of the environmental reports with specific information	Minimum Financial risk
Environmental policy and management systems in place with specific time plans and compliance with it	Percentage of waste volume and Quantity generated as against previous years (or previous x years)
Quality of working environment	Renewable fraction (percentage) of total material and energy used
.	Frequency of energy of material audit conducted
	Percentage of total budget spent on environmental protection
	Man years spent on environmental protection
	No of sick absentees
	Amount of R&D budget spent on the environment

Table 6 is the model for environmental investment decisions for Pension fund investors

6.3 Area of further Research

The recommendation as stated above open up an area of further research in which the practical applicability of the tool could be verified by using accurate data.

Bibliographic References

1. Blumberg Jerald, Korsvold, Blum Georges *Environmental Performance and shareholder value* World business council for sustainable development Geneva, 1996
2. Britannica online Homepage <http://www.eb.com:180/> site visited on 20 November 1998
3. Brophy Michael, *Environmental guidelines and charters*, in Welford Richard (Ed), *corporate environmental management Systems and strategies*, Earth Scan publications limited, London 1996.
4. Cleaner technology Performance indicators Project (draft) DG X11 EU Brussels 1998.
5. Cooke Spenser Andrea *Where Silence is not golden: Towards the strategic use of corporate environmental reporting for company valuation* Certified Accountants Educational Trust, London. 1994
6. Cook Kristopher *Industry and environment study notes* LUMES 1998.
7. Copeland.E Thomas & Weston J Fred *Financial Theory and Corporate Policy* Addison- Wesley Publishing Company, Inc. USA 1983.
8. Cohen A. Mark, Fenn A. Scott & Konar shameek, *Environmental and Financial Performance: Are they related?* Owen graduates school of management, Vanderbilt University May 1997.
9. Dowrie W. Fuller, Fuller R. Doughlas & Calkins J. Francis, *Investments*, John Willey and Sons Inc. USA, 1961.
10. Delphi International ltd. in association with ecologic GmbH, *The role of financial institutions in achieving sustainable development*, Report to the European commission by November 1997
11. Elton J Edwin, Gruber J Martin *Modern Portfolio theory and Investment Analysis* john willey & Sons, Inc. USA. 1991
12. Federation of Swedish Industries *Environmental Investment Funds* Förlags AB industriliteratur Stockholm. 1996
13. Figge Frank *Systematisation of economic risks through global environmental problems- A threat to financial markets?* Centre of Economics and business administration, University of Basel, August 1998.
14. Hayes A. Douglas, *Investments: Analysis And Management*, The Macmillan Company, New York, USA, 1961.

15. Hart L Stuart *Beyond greening, Strategies for a sustainable future*, Industry and environment literature LUMES 1997 taken from Harvard Business review February 1997
16. Harrison E Bruce. *Going green How to communicate your company's environmental commitment* Book press USA 1993.
17. Hemlin Jan & Leijon Svante *Investments in research & development: - A Trend Analysis* Högskolan I Östersund, Rapport 1992.
18. Huisinigh Don *Industry and Environment study notes* LUMES 1998
19. Johansson Anders & Modin Karl Markus *Investment plan revision and Share Price Volatility- working paper No.57* National Institute of economic research and economic council. Sweden Dec.1997.
20. Lindquist Thomas *Industry and environment study notes* LUMES 1998.
21. Loch Mc Cabe & Suan Muller *Pollution Prevention Venture Capital: What investors consider in Pollution Prevention Firms* Centre for environment Policy, economics and science Longshore Ann Arbor, USA November 1996
22. Ljungberg Petra *Environmental issues in financial investment strategies- A study of environmental funds* Masters thesis for the international institute of environmental economics Lund Sweden 1996
23. Luenberger G. David, *Investment science* Oxford University Press, New York Oxford, 1998.
24. Murray C. Brian, Kelly J. sheryl & Ganzi. T John, *review of environmental risk management at the banking institutions and the potential relevance of ISO 14000* Working paper prepared for Environmental protection Agency, US 1997.
25. Niemczynowicz. Janusz *New aspects of urban drainage and the pollution reduction towards sustainability* 1994 from Urban systems and environment course Literature LUMES 1998
26. Prime H John *Investment Analysis*, fourth Edition, Prentice- Hall Inc., eagle wood Cliffs, New Jersey. 1967
27. Repetto Robert, Rothman Dale, Faeth Paul & Austin Ducan *Has environmental protection really reduced productivity growth? We need unbiased measures*, World resources institute USA 1996
28. Schanzenbacher Bernd (Dr) *Environmental Policies and practices in the Financial services sector* United nations Programme, Environment and trade Unit, Geneva, Switzerland 1998.

29. Schmidheiny, Stephen, and Federico J.L Zorraquin.. *Financing Change: The Financial Community, Eco-Efficiency, and Sustainable Development*. Cambridge, MA: The MIT Press. 1996
30. Skillus Åsa & Wennberg Ulrika *Continuity, Credibility and Compatibility Key challenges for Corporate environmental performance measurement and Communication*, A report commissioned by the European Environment Agency, The international Institute for Industrial Environmental Economics at the Lund University, 1998.
31. Stahel R. Walter, Institute de la Duree *From Products to Services: selling Performance Instead of goods*, in The IPTS Report edited by the institute for prospective Technological studies and issued in co-operation with the European S&T observatory Network, September issue, 1998.
32. Sutcliffe Mark *Essential elements of business economics A modular series* Gruernsey press company limited, Vale , Great Britain 1994.
33. *Signals of Change- Business Progress Towards sustainable development* World Business council for sustainable development 1996.
34. The Canadian Institute of Chartered Accountants in association with Canadian Standards Association, Financial Executives Institute Canada & International Institute of Sustainable development *Reporting on environmental performance*, Ontario, Canada, 1994.
35. *The pension reform in Sweden*, Published by the Ministry of health &Social affairs, Stockholm 1998.
36. Vaughan Dion & Mickle Craig *Environmental Profiles of European Business* edited by Walter Patterson, Energy and Environmental programme, Royal Institute of international affairs, Earthscan publications, London, 1993.
37. Welford richard &Bhargava Sangita *Corporate Strategy and the environment: the theory* in Welford Richard (Ed), *corporate environmental management Systems and strategies*, Earth Scan publications limited, London 1996.

Personal Interviews with

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Annual reports studied

The annual reports of the following insurance companies were studied:-

1. AMF pensions
2. KPA pensions
3. Folksam Insurance company.

Appendix 1

The pension system in Sweden⁹

Basic principles of the reformed pension system

- Pension benefits will accrue in proportion to a person's lifelong income
- Everyone will be guaranteed a minimum pension.
- The full pension amount will correspond to paid-in contributions. The value of the paid-in contributions will increase at the same rate as the general earnings trend.
- The pension system will be adjusted to overall economic resources.
- It will be possible to draw income related pensions from the age of 61
- Pension rights will accrue for the time spent at home looking after children, for national services and for studies that qualify for study support.
- The new rules will be introduced gradually and will apply primarily to tomorrow's pensioners.

Main features of the pension system

- Old age pensions will be kept separate from social insurance and will be kept as a separate class of insurance.
- Pension rights will accrue for 18.5 % of the earnings during a person's entire working life and also includes the child care years.
- Pensionable income will be that amount of income that comes after the pension contribution.
- Pensions will be financed by contributions amounting to 18.5 % of income. Payment of the contribution will not affect overall tax and contribution payments.
- 16 % of the 18.5% pension contributions will go to finance of the pensions payable during the same year.
- The remainder 2.5% will be funded and will carry interest in an individual prefunded pension account.
- Thus there will be two kinds of pension: income related and prefunded pensions.
- When people retire they will be paid in different forms of life long annuities the capital they have saved plus interest. Pensions paid out under this system are called prefunded pensions.
- Due to longer life expectancy the number of pensioners is going to increase. By year 2025, 100 workers must support 40 pensioners.
- Each pension owner will be allowed to choose the pension company he or she desires.

⁹ the pension reform1998

Appendix 2

Details about organisations interviewed for the purpose of the survey

1.AMF pensions

AMF pensions is a life insurance company which is jointly owned by SAF (the Swedish employer's confederation) and LO (the Swedish trade union confederation). The company was formed in 1973 and is a provider of supplementary pensions for private employees. Alongside traditional insurance products, they also offer private pension insurance, named AMF privat, and unit linked insurance. AMF pensions have administered the key task of managing the private sector employee's supplementary pensions.

2.Kommunsektorns pension AB (KPA)

KPA is 68% owned by the Förenade Kommunföretag AB, which is wholly owned by the Swedish association of local authorities. The federation of Swedish county councils owns the remaining 32%. These two organisations have given KPA the assignment of being the local authorities sector's know-how company and partner, to meet the needs for pension solutions, personal insurance and related financial services. The customers of KPA are in the local authority sector. They are about 2000 employers with more than 1 million employees in the municipalities, counties, and the church of Sweden's parishes as well as companies in the sector

3. Försäkringskassaförbundet (FKF)

The Federation of Social Insurance Offices (FKF) is the professional, service and employer organisation of the social insurance offices. FKF is one of the oldest national organisations in Sweden and was founded as early as 1907. They aim to convey their experience and views to the public, the Riksdag, the Government, authorities and organisations. They do this by participating in committees and investigations, which concern the work of the insurance offices and the development of social insurance. Aided by a wide network of contacts they also contribute to the opinion-forming process and the overall social debate. They also seek to influence the future development of social insurance and the functions of the insurance offices

4.The Swedish Association of Local authorities (SVEKOM)

The Swedish Association of Local Authorities, is an organisation of interest for the 288 Swedish local authorities, the 288 kommuner. They do not run any funds for them, they are all independent and run their own funds. Svekom has just an advising function for these kommuns.

5. Kalmar Läns Landsting

Kalmar läns landsting has formed an association with some of the municipalities within the county council. This association manages their pension funds directly by investing on their own in the companies

6. TCO

The Swedish association of professional employees (TCO) is an association of Sweden's white-collar trade union organizations, and has the task of exercising the central leadership of the white-collar workers' movement, thereby safeguarding and promoting the joint economic and social interests of white-collar workers. TCO unites 1.3 million Swedish white-collar workers from all areas of society. TCO consists of 18 affiliated trade unions. The professional roles of the members vary widely but there is much to unite them, and it is these shared questions that TCO works with both within Sweden and at the international level. Examples of such questions are jobs for all, job satisfaction and opportunities for professional development and training, a good working environment, for example with computers which satisfy strict ergonomic demands, and security of income for those who fall ill or have children:

7 The Stockholm county Association of local authorities (KSL)

The Stockholm County Association of Local Authorities. KSL is an association of the 25 municipalities/cities within the Stockholm County. The total population of their member authorities amounts to some 1.7 million citizens. The tasks of the association is usually presented in four main areas: Support and safeguard the local self-government. Watch over the interests of their member authorities. Promote co-operation among their members. and assist their members in their tasks.

8 Svenska Arbetsgivareföreningen (SAF)

The Swedish Employer's Confederation (SAF) consists of 43,000 large and small companies, organised in 38 employer associations. SAF's most important task is to promote Swedish enterprise and to the best possible climate for personal and economic growth. A significant part of this work involves influencing public opinion and a better understanding of the conditions and incentives which private enterprise and creation processes.

SAF informs the companies By means of seminars, printed matter and the Internet, SAF regularly informs companies about important events on the labour market, in politics, or in the field of management development. SAF is also an insurance company. In practice, SAF is also an insurance company, compensating for damage arising from industrial disputes. 38 employer associations. SAF has 17 regional offices located in different parts of Sweden.

4. What is the average rate of return you expect from the investments you make?

5. After how much time do you expect rate of return?

6. What are the main problems you face in delegating the investment decisions?

7. Do you consider the Long-term nature of the liabilities while making investment decisions?

8. What legal requirements have to be complied with in making investment decisions?'

9. Is there any thing in the legal statues that goes against environmental investments?

10. Is there any thing that goes for environmental investments?

11. Do your customers demand environmental funds investment?

12. If so what percentage demands?

13. What are the demands by most of the customers?

- a. Specific rate of return
- b. High rate of return
- c. Ethical environmental considerations

17. Can the subscriber's demand influence decision-making?

18. What is the average time for each investment?

19. Do you have to consider marketability / flexibility of the investments made or do you simply make an investment until it has to mature and be paid?

Thankyou for sparing your valuable time.

Appendix 4

The investment criteria of environmental funds

- New environment friendly technologies like
 1. Alternative energy
Like wind energy, water generated energy, solar energy, geothermal energy and partly or completely use alternative energy/fuel
 2. Recycling technologies
 3. Product and process related technologies that reduce environmental impact like pollution prevention equipment,
 4. Technology for solid waste disposal.
 5. Water treatment and recycling
 6. Develop and produce pollution control equipment.
 7. Long term growth technologies like telecommunications, production or enhancement of mass transit system
 8. Biotechnology
 9. Technology for raw material recycling Ecological agriculture like support or engage in ecological agriculture, ecologically produced products
 10. Engage in ecological construction projects
 11. Use of environmentally friendly raw material
 12. Have efficient water use in their production process
 13. Produce end products which are green
 14. Material efficiency use through recycling
 15. Have environmental management
 16. Have environmental audits,
 17. Environmental communications like environmental reports
 18. Promote awareness of environmental issues
 19. Engage in environmental consultancy
 20. Make above average efforts to minimise environmental damage caused by their activities
 21. Focus considerable part of their research on environmental issues
 22. Have minimum environmental liabilities.

There are some other criteria, which have been listed as unclear. These criteria do not specify whether they actually engage in specific environmental issues. They are vague for eg they show commitment to the principle of sustainable development (*but how is not specified*).

In the same way there are negative criteria which are as follows.

1. Produce or distribute nuclear energy
2. Produce energy that lead to considerable emmissions
3. Produce hazardous waste
4. Have regulatory problems
5. Emit ozone depleting substances
6. Global warming contribution
7. Produce toxic emmissions
8. Have substantial other emmissions
9. Engage in mining activities

10. Manufacture cars
11. Construct roads or contribute to the construction of roads
12. Are active in developing countries and do so in unsound ways
13. Have environmental liabilities or a history of pollution convictions
14. Are active in forestry in general
15. Produce or import tropical wood
16. Make use of genetic manipulation
17. Are active in pesticides
18. Produce or use agricultural chemicals