As environmental issues are now a major concern in corporations, financiers cannot afford to ignore them.

Environmental Opportunities and Risks in Finance

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Introduction

Increasing public concern over environmental issues has produced Green investors and Green consumers as well as Green voters and Green laws. Environmental issues affect businesses directly through markets, as well as indirectly though government policies and law. In addition, market preferences change much more rapidly than legislation, as indicated by the speed of change in Green advertising. These factors have increased the size and complexity of both the commercial opportunities and the commercial risks associated with environmental management. In addition, an increasing number of environmental management problems are recognized as transnational or global in scope, requiring the exercise of international legal instruments of various types[1]. These may affect international trade as well as domestic environmental legislation.

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All sectors of commerce and industry are affected by these changes. Some sectors and companies are responding by lobbying against Green trends; others are seizing new market opportunities. The finance sector is involved in four main ways:

- changes in share prices
- rapidly-growing Green investment
- brokering environmental rights and credits
- increased risks of financing companies with potential environmental liabilities.

I shall concentrate here on investment opportunities and lenders' risks, with a brief mention of environmental rights and credits[1,2]. Regarding share prices, it need only be said that companies which successfully manufacture or retail either Green consumer products, or recycling or pollution control technologies or processes, have profited well and their share prices have risen. Companies which have failed to gain environmental planning approvals, or have been penalized for breaching environmental regulations, have suffered from reduced profitability and correspondingly lower share prices.

Green Investment Opportunities

Green investment falls into two main categories:

- individual investors in institutional funds with environmental constraints
- institutional investment in industries with environmental markets.

Green investment funds are drawn up so as to attract individuals who have personal objections to the use of their money for environmentally damaging projects. Typically, the funds either buy shares in operating companies whose activities they consider to be environmentally acceptable, or invest directly in projects based on environmentally benign technologies or environmental management services. Sometimes the funds have a "senate" panel of environmental experts who vet the board's investment proposals. At present, these funds have been very successful in attracting investors; their major difficulty is in finding investment opportunities which meet environmental criteria.

Green investment opportunities include designing energy-efficient and resource-efficient buildings, plant and processes, and pollution control, waste treatment and recycling technology and services. At present the largest sector of the market in environmental technologies and services is associated with waste management.

There are also major investment opportunities in other industries, however. One of the fastest growing sectors of the tourism industry, for example, is so-called Green tourism: tourists who deliberately choose destinations,

accommodation and activities with environmental attractions or above-average environmental management standards. This has created opportunities ranging from energy-efficient hotels and low-pollution golf courses through to rain forest time-share units.

Estimates for the world market in environmental technology and services vary. The GLOBE 90 conference forecast the global market at US$3 trillion annually by the turn of the century. Other estimates are closer to $1 trillion, but in 1990 dollars. The 1990 market worldwide was about A$500 billion[3]. Regional markets are summarized in Table I.

In the USA, this expenditure is divided fairly evenly between solid, liquid, gaseous and hazardous wastes, with gaseous and liquid wastes making up the highest proportion at present, and hazardous wastes the lowest. The kinds of services provided include transport, landfill, incineration and recycling of wastes; design, manufacture and installation of pollution control equipment and energy-efficient plant and buildings; groundwater clean-up; and monitoring and independent laboratory testing. Opportunities in the waste management market have been examined recently by O'Gallagher[4].

The Australian domestic market for environmental technology and services is currently at least A$8 billion annually, and is forecast to be at least A$12 billion (1990 dollars) by the year 2000. Gaseous waste management, principally stack emission control, makes up around A$5 billion of this; waste water treatment A$1.3 billion, and recycling over A$1 billion. Interestingly, solid waste management outside the mining industry makes up only A$21 million annually at present, and hazardous wastes only A$123 million. This is not altogether surprising, since municipal and hazardous wastes in Australia have generally been dumped in unsealed landfills.

Table I. *Markets in Environmental Technology and Services*

Region	Current turnover in 1990 (A$billion)	Projected turnover in year 2000 (A$billion)
North America	140	294
South America	10	16
Western Europe	161	316
Eastern Europe	27	58
USSR	74	160
Japan	70	151
China	7	15
India	4	8
Newly industrialized	8	19
Other Asia	8	13
Total	509	1,050

Source: [3]

Green Brokerage Opportunities

As Green taxes, charges, and tradeable rights and credits become more commonplace as instruments of environmental policy both domestically and internationally, new opportunities are also being created for financiers to act as brokers and traders.

There is an increasing emphasis on the use of market-based measures for environmental protection. These include so-called Green taxes, charges, levies, bonds, tradeable or bankable permits and rights, and modifications to property rights, as well as changes to income and sales taxes and excises to encourage good environmental management[5,6].

Instruments which involve Government charges or fees are likely to be administrered directly by Government agencies. Trading and banking of environmental rights, however, is more likely to involve the private finance sector. Future transactions for the sale of land, for example, may have to consider environmental rights as well as air rights, water rights, mineral rights, timber rights and so on.

Most significant in financial terms are proposals for globally tradeable carbon emission rights as a means to combat the enhanced greenhouse effect. It has been estimated that if such rights were allocated to countries on a current per capita basis and then traded between countries so as to bring about the current distribution of greenhouse gas emissions, this would involve annual transfers of around $4 trillion from the developed to the developing countries. Clearly, such a system is unlikely to be implemented in full; but equally, even partial implementation would involve sums of money large enough to be of considerable interest to the international finance community; not to mention the massive repercussions for global and domestic economies.

Risks

Financiers face risks from lending to companies with potential environmental liabilities for three main reasons:

- cash flows may be delayed and no longer cover interest repayments
- assets and securities may lose value
- statutory penalties and other liabilities may be transferred directly to financiers.

The legal and financial risks which industry and commerce face from poor environmental management have increased greatly and are continuing to do so[7]. They include costs associated with:

- fines for breaching regulations;
- other statutory penalties such as closure of plant or site, injunctions to stop particular activities, forfeiture of assets, compulsory actions, statutory compensation;
- penalties for individuals, including fines, convictions, gaol terms;
- recovery of costs, expenses, losses and damages by public authorities;
- restraining orders over property, and charges against such property;
- compulsory control, prevention and mitigation measures;
- clean-up, repair and rehabilitation costs;
- compensation claims, citizens' lawsuits and class actions;
- temporary closure by regulatory agencies or court injunctions;
- upgrading, retrofitting or replacing equipment to more stringent standards;
- delays in approvals for future projects;
- lost market share from poor public image or product boycotts;
- falls in share prices;
- reduced credit from suppliers;
- higher insurance premiums.

Liability for environmental damage and degradation is being applied more and more widely and strictly. The trend is for liability to be applied:

- *Strictly:* to all consequences of an action, even if it was not illegal, deliberate, negligent or reckless;
- *Jointly and severally:* to all past and present owners and operators for the site(s) concerned, whether or not they actually caused environmental damage;
- *To individual directors and staff:* as well as to corporations.

Both industry and finance sectors face financial risks from the potential transfer of environmental liability[8-11]. Such transfer of liability can occur:

- in corporate mergers and acquisitions
- through contractual arrangements between operating corporations
- through equity holdings in operating corporations
- through loan agreements and other financing arrangements
- through insurance contracts and their legal interpretation by the courts.

Until recently, financiers believed that as long as they did not take possession of an operating corporation's sites or assets, or take part in its day-to-day management, they could not be held liable for any statutory penalties applied to that corporation. Recent cases in the USA, however, have established that at least in some jurisdictions and circumstances, financiers may be held liable for statutory environmental penalties applied to an operating corporation simply because they are in a position where they could, if they so chose, influence the financial management of that corporation. There are complex legal ramifications [12,13] in determining:

- whether a corporation has an environmental liability;
- what form that liability takes, e.g. penalties, clean-up costs, damages;
- whether the liability is covered by insurance;
- whether the liability can be shared or transferred;
- how liability is split between shareholders, insurers and financiers.

Different courts have reached widely differing conclusions, but all have placed particular emphasis on due diligence as a factor in allocating responsibility[13].

For example, a bank, building society or credit union lending money to a person or company to buy land, residential or commercial property could potentially find itself facing a multimillion dollar clean-up bill. If the land concerned was contaminated, either from past activity on-site or even from activity on a nearby site, and that contamination posed a possible threat to health, then the owners or occupiers of the site might be forced to pay for clean-up. And unless the purchase contract contained a clause which made the vendors liable for clean-up costs after sale, the purchaser would generally be liable. And if the purchaser was unable to pay, the lender might well end up footing the bill.

This means that it is now up to lenders to satisfy themselves that borrowers are not likely to suffer any environmental liabilities, and that they are adequately insured against unforeseen environmental damage. Lenders need to identify and quantify any potential environmental risks on their own account, just as they would identify and quantify other types of risk. This process has become known as environmental audit, and is now well documented[2,14-16].

Quantifying environmental risks is not easy: but it is necessary, because it determines how much it is worth investing to avoid them. Estimating the chances of physical events such as spills, leaks, explosions and seepages is difficult enough in itself, but this is only the first step. It is also necessary to quantify the likely financial losses from such events, whether through legal or market processes.

Recent examples from the USA indicate that multimillion dollar environmental clean-up costs are commonplace[17-19]. The largest single-site clean-up cost over US$2 billion[20]. The courts ruled that since the company concerned was aware of the environmental impairment, its insurers were not required to cover this cost. In this case the company was large enough to absorb the loss. Many companies, however, faced with such a liability, would have become insolvent, perhaps passing the liability to their lenders. It has been estimated that cleaning up the 25,000 sites classified as hazardous by the USEPA will take 50 years, and cost over US$700 billion[20]: an average cost of US$28 million per site.

Conclusions

As the natural environment becomes steadily less Green through human activity, the business environment is Greener than ever before. Environmental issues are of major community and electoral concern worldwide. In consequence, environmental management is now a major component of any corporation's overall management, environmental markets a significant component of its overall markets, and environmental strategy an essential component of its overall strategy. Financiers, in particular, cannot afford to ignore either environmental risks or environmental opportunities.

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