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Economics, Corporate Sustainability and Social Responsibility

by

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Economics, Corporate Sustainability and Social Responsibility

ABSTRACT

It is often argued that corporate sustainability requires a corporation to make a profit, to act in a socially responsible manner and to engage in policies that are environmentally sustainable. This is sometimes called the corporation's triple bottom line. In this paper it is argued that in practice profitability or more general maintaining economic variability constitutes a corporation's bottom line and that it is limited by this consideration in showing social responsibility and in acting with environmental responsibility. Because of the nature of market competition, it is argued that government intervention is often required to ensure that corporations act in a socially responsible and environmentally acceptable way. In fact, such intervention is absolutely essential in some circumstances for ensuring the sustainability of markets and corporations themselves that want to act in a socially responsible and environmentally favourable manner.

. Economics, Corporate Sustainability and Social Responsibility

1. Introduction

The main objective of this contribution is to show that the continuing economic (financial) viability of a corporation is the dominant factor determining its survival. A corporation cannot afford to adopt social and environmental behaviours that will compromise its economic viability, otherwise the corporation will not be sustainable. Self-interest limits the extent to which corporations can engage in socially desirable behaviours and survive, particularly if externalities or public good elements are present. When externalities and public good elements are present, collective corporate action is required for improved social and environmental outcomes but these actions can usually only be brought about by state intervention designed to police the rules of collective corporate behaviour. In such cases, state intervention helps to establish a level playing field for corporate competition and allows most corporations to discharge their social and environmental 'duties' without becoming insolvent. It is contended in this article social rules are necessary to limit self-seeking behaviour and improve the performance of market systems. These rules in turn support the sustainability of the commercial sector and market economic systems.

The article at first considers whether or not there is a single or triple bottom line for the survival of a corporation. It then examines in depth, and in turn, economic viability, social and environmental responsibility as requirements for the sustainability of a corporation. In discussing economic viability, such matters as what is required for corporate economic viability, the influence of uncertainty on this viability and the extent to which the financial security of a corporation can be traded off to pursue social and environmental objectives are discussed. In relation to social responsibility matters involving social and commercial ethics are considered and their economic consequences are explored. Although corporate environmental behaviour involves aspects of social responsibility, it is of sufficient current interest to be discussed in a separate section in this article. Issues such as whether environmentally friendly behaviour by a corporation adds to its sustainability are examined and constraints on

the adoption of such behaviour are outlined. In many cases, it is clear that socially responsible use of natural environments can only be achieved as s result of state intervention. Such intervention has implications for corporate sustainability which vary with the method of regulation adopted. This aspect is also considered.

2. Is a Single or a Triple Bottom Line Required for Corporate Sustainability?

It is not unusual today to hear claims that if a corporation is to increase its long-term chances of survival that it must display social and environmental responsibility in its behaviour and maintain its economic viability. However, this view can be misleading because it fails to emphasize that the necessary (and most likely sufficient) condition for the survival of a corporation is that it remains economically viable. If it does not, it will become financially bankrupt and disappear as a legal entity. Therefore, corporate actions that are socially and environmentally responsible can only be pursued to the extent that they are compatible with the economic viability of the business if it aims to survive. The overarching requirement for corporate sustainability is continuing economic viability. It is the bottom line and moderates the exercise of social and environmental responsibility. Looked at from this viewpoint, there is a single bottom line (which is maintaining the economic viability of the corporation) not a triple bottom line for the survival of a corporation.

Nevertheless, it is clear that a corporation can pursue social and environmental goals and survive. However, it can only do this to the extent that is economically viable. In analysing this matter, the relationship between pursuing particular social and environmental goals and the economic viability of the corporation needs to be considered. Sometimes the pursuit of such goals will increase the economic strength of a corporation. For example, a socially responsible approach to quality control and maintenance of product standards may add to the company's standing and goodwill amongst buyers and maintain or increase the demand for its products, thereby making the corporation more viable economically. Or again, a socially responsible and a caring attitude towards employees can reduce staff turnover and attract desirable new job applicants to a company which can add to the economic performance of the company. Furthermore, if 'green' business policies are adopted and publicized, this can increase the demand of environmentally concerned buyers and add to demand for

the company's product. However, in some cases, the increased economic benefits to the company of following pro-social policies will be less than their increased cost and can compromise the company's financial viability if the corporation becomes too charitable.

Every situation has to be assessed individually and the benefits to the corporation of following socially and environmentally responsible policies are likely to vary with the institutional and social context in which they occur. Thus they are liable to vary with national or geographical contexts as well as historical settings, a point of view which is compatible with the philosophy of traditional institutional economists and evolutionary economists (Tisdell and Hartley, 2008, Ch.3).

Aspects of the type of trade-offs that a corporation may face in pursuing pro-social actions can be illustrated by Figure 1. The extent to which a company follows pro-social goals is measured on the X-axis, and on the Y-axis, there is a measure of the profitability of the company as measured for example, by the market value of its shares. The curve ABCD represents the relationship between the boundary of the profitability of the company and the extent to which it pursues pro-social goals. This relationship shows that the company can increase its profitability by following pro-social goals up to a point. It can do this if the social desirability of its actions are in the range of $x<x_1$. It maximizes its profit by adopting social policies corresponding to x_1. If it adopts socially more desirable policies in the range $x>x_1$, the corporation forgoes profit. That raises the question of just how much scope, the corporation has to forgo profit and remain sustainable. This issue is taken up later in this essay. For now imagine that the business must earn a minimum profit of OF to remain economically viable. This means that pro-social strategies in the range of $x>x_2$ are **not** compatible with the continuing existence of the firm.

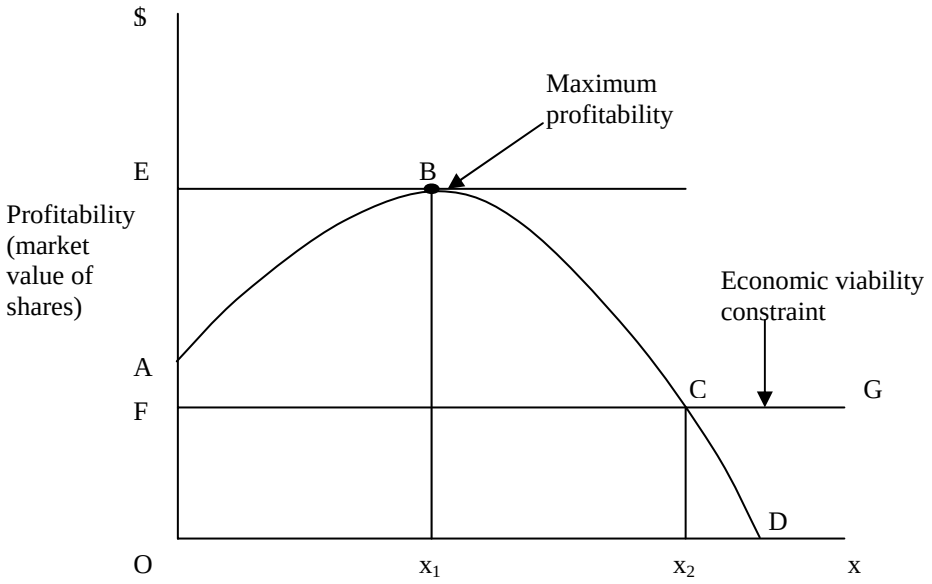

Figure 1: An illustration of one type of relationship between the degree of profitability of a corporation and the extent to which it pursues pro-social goals.

In the case illustrated in Figure 1, the corporation has some (but limited) discretion in forgoing profit to pursue policies that are socially more desired. In the case shown, the firm remains economically viable provided it can earn a profit of OF or more. Therefore, the line FG represents an economic viability constraint. There are however, other cases in which the corporation has little choice in this regard. In the extreme case, the economic viability constraint may coincide with line EB which implies that the corporation has no discretion to forgo profit to pursue social goals. Yet the corporation does pursue social goals because in the range $0<x<x_1$ improving the corporation's social behaviour adds to its profit. Both goals are complementary in this range as indicated by the positive slope of the profitability/pro-social behaviour curve.

There could, however, be some cases where a complementary relationship does not exist between these variables. While this may be rare, it means that a corporation can only carry out pro-social policies if it forgoes profit. In such cases, if its financial viability constraint requires the corporation to maximize its profit, it has no scope for adapting pro-social behaviour if it wants to survive.

The above also raises the question of whether the economic viability of a firm always rises with its profitability, as, for example measured by the market value of its shares or by its present discounted value. As discussed below, given that capital markets are imperfect in their operation, sometimes an attempt by a company to maximize its capitalized value can result in liquidity problems for it and render it unviable. To take care of this problem, only levels of profitability (capitalized value) that are compatible with the corporation's economic viability might be related to the extent to which the company adopts pro-social policies. When this is done, the type of relationship shown in Figure 2 by curve HJK might result. This relates the maximum capitalized value of the corporation to the degree to which the corporation pursues pro-social goals but only taking account of that capitalized value strategies that enable the corporation to remain economically viable.

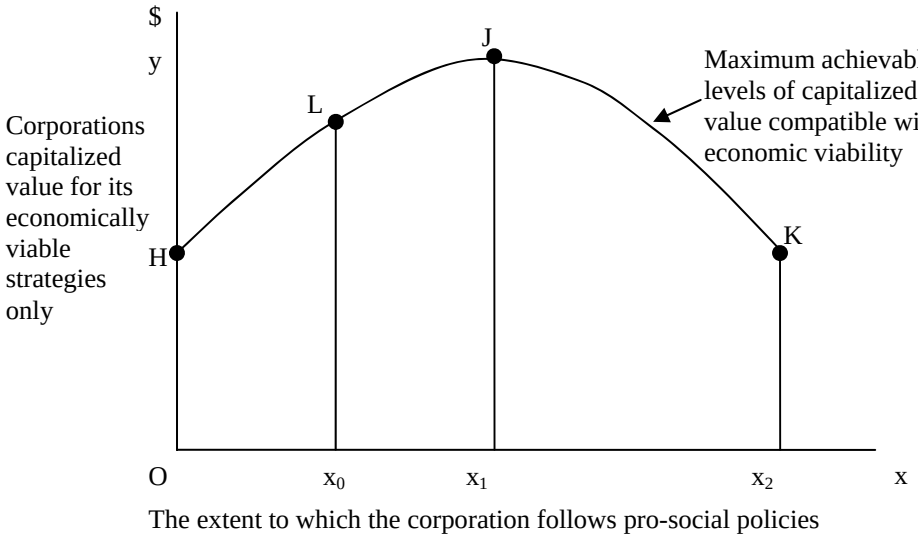

Figure 2 A possible relationship between economically viable levels of achievable capitalized value of a corporation and the extent to which it pursues socially desirable behaviour.

In the case illustrated, it is optimal for the corporation to act in a socially responsible way to the extent x_1 if it wishes to remain viable and maximize its capitalized value. Along the segment HJ of the function shown in Figure 2, there is no conflict (there is complementarity actually) between being more socially responsible and increasing the capitalized value of the corporation and remaining economically viable. However, showing increased social responsibility in the range $x_1<x<x_2$ is at the expense of the

corporation's capitalized value even though it is consistent with the economic viability of the corporation. On the other hand, the pursuance of social responsibility in the range $x>x_2$ result in the demise of the corporation.

The functional relationship HJK shown in Figure 2 is similar to that of ABCD in Figure 1 but theoretically it need not be. For example, the type of relationship shown in Figure 2 might consist of a single point, a few points or be negatively or positively sloped throughout. For example, if it is a single point such as H, then the only economically viable policy of the corporation will be to show **no** social responsibility. If it is the single point J, the only viable solution available to the corporation is to display responsibility to the extent x_1. If the type of relationship consists only of a declining segment commencing on the Y-axis, capitalized value will be maximized by displaying no social responsibility. However, by forgoing profit, some scope exists for showing some social responsibility and continuing to survive as a corporation. The consequences of the relationship consisting of only one upward sloping segment such as HJ in Figure 2 are easily specified.

In many cases (probably most) one would expect the corporation's economically viable capitalized value curve to begin to the right of the Y-axis in Figure 2. For example, a typical relationship might be that indicated by curve LJK. This means that if the corporation shows less social responsibility than $x = x_0$ it will fail to survive. A minimum degree of social responsibility is needed for the corporation's survival For example, a food producer that makes and sells poisonous or contaminated food (for example smallgoods capable of causing botulism) not only acts in a socially irresponsible manner but is likely to become insolvent once the behaviour becomes known.

Clearly, many different relationships are possible between the viable profitability of a corporation and its exercise of social responsibility. However, in all cases, the corporation's scope for exercising its social responsibility is restricted by its need to remain economically viable.

3. Economic Viability

3.1 What is economic viability

Economists usually associate the economic viability of a firm with its continuing to be profitable. Being profitable requires from an economic point of view that a firm earns at least the normal rate of return on its capital, a return equal to the going rate of interest on capital. This is an indication of the opportunity cost of investing capital in a business. However, the dominant neoclassical economic theory of the firm has been developed on the assumption that perfect knowledge exists about relevant business opportunities. This implies, amongst other things, that the capital market operates in a perfect manner. Consequently, there are no financial liquidity barriers to managing the profits of a business.

The neoclassical economic theory of the firm is well specified by Sir John Hicks (1946). He argues that business firms (given the above conditions) will aim to maximize their profitability and this requires their managers to adopt strategies which maximize the firms' net present value or its capitalized value. In the case of a corporation, these would be strategies which maximize the market value of shares in the corporation. Whether or not it is necessary for a business to maximize its profit in order to remain sustainable is, however, a moot point and will be discussed later.

Because neoclassical economic theory assumes perfect knowledge, no liquidity problems arise for the firm. In practice, uncertainty about the profitability of different economic strategies is widespread. Consequently, capital markets are not perfect and liquidity problems can arise for a company following a profit-maximizing strategy. Because of uncertainty, financiers may be unprepared to finance a company's profit-maximizing strategy because they are unsure of how profitable it will really be. In practice, the economic viability of a corporation requires it to be profitable and to avoid becoming illiquid.

3.2 Uncertainty and the economic sustainability of a corporation.

As emphasized above, economic uncertainty requires the managers of a corporation to adopt policies that enable the company to remain both liquid and profitable. In a world of economic certainty, liquidity would not be a constraint on corporate sustainability if the company remained profitable. The Austrian School of Economics (Tisdell and Hartley, 2008, Ch.3) as well as Frank Knight (1922), consider the neoclassical economic theory of the firm to be a very restricted one. They emphasize the importance of uncertainty, imperfect knowledge and entrepreneurship as the driving forces of capitalist market economies. These are the driving forces of economic growth and the source of above normal business profits as well as contributors to business failure. Many shareholders in business corporations are prepared to risk the possibility that a corporation could become unsustainable if it pursues a strategy that also has the prospect of yielding high levels of profit. They are prepared to gamble.

This means the question of whether the sustained existence of a corporation is desirable. Sustainability is not an absolute virtue and the concept itself can be quite complex (see for example, Tisdell 2003, Chs. 6-7; Tisdell, 2005, Ch. 11). In particular, some institutions, such as some forms of dictatorship, can be undesirable to sustain and there can come a time when the extension of the life of a corporation is undesirable. Some corporations may be established for a specific purpose for example, mining companies. When this purpose is completed, for instance, economic deposits of the mineral are no longer available for mining or there is no longer any demand for the mineral, shareholders may agree that the company should be wound up. Furthermore, long-established corporations may become set in their ways, lack initiative and have low profit levels. From society's point of view, it may be advantageous for them to be replaced by new and more vigorous corporations.

3.3 To what extent do corporations have to maximize their profit to remain economically viable?

The views of economists differ about the extent to which the managers of corporations have to maximize the profits of their companies if they are to remain in existence. In oligopolistic industries and monopolized industries, the managers of

corporations are often in a position to earn above normal profit. At the same time, there is a separation of the ownership of the firm (its shareholders) from its management. This gives rise to a principal-agent problem. The principals of public companies (the shareholders) are not able to control effectively the actions of their agents (the managers). Consequently, as explored in managerial theories of the firm (Tisdell and Hartley, 2008, Ch.7), the managers of public companies have some discretion to pursue their own aims rather than those of shareholders. Mostly, it has been suggested that managers will appropriate extra personal benefits for themselves, including the enjoyment of extra organizational slack.

However, managerial discretion could also give managers scope to pursue social and environmental objectives in order to gain greater social recognition or to have a life less subject to social criticism. This is similar to the motivation of a monopolist not to exploit his/her monopoly fully in order to enjoy a life involving reduced social conflict.

It should, however, be noted that managers of public corporations do not have unlimited scope to pursue discretionary power. If they fail to make adequate profit, the corporation may become bankrupt. Furthermore, funds will not be supplied by shareholders for future growth of the corporation if the corporation does pay satisfactory dividends (Baumol, 1959).

Some economists (for example, Marris, 1964) argue that the scope for managers of public corporations to follow discretionary behaviour is very limited because of the economic discipline enforced by capital markets. Those companies that fail to use their capital for its most profitable purposes (opportunities) are liable to be taken over by raiding companies. Consequently, their continuing existence is at stake. This can restrict the scope of managers of public companies to engage in discretionary behaviour, including social and environmental actions which might be acclaimed by the community but which are a drain on the profits of the company. This implies that to a considerable extent, maximizing profitability remains the bottom line for a public company. This limits the extent to which profits can be forgone to pursue social and environmental objectives. It also implies on the whole that these latter objectives will only be pursued if they add to the profitability of the company.

4. Social Responsibility and Corporate Sustainability

4.1 To what extent should corporations be socially responsible?

Adam Smith (1910) pointed out that the market system relies for its operation on individuals and businesses following their own self-interest. Economic exchanges are based on the pursuit of self-interest rather than charitable behaviour. Furthermore, many economists have argued that if externalities are absent and individuals are reasonably well informed, this maximizes economic welfare given competitive market conditions. In these circumstances, it would mean that there would be no need for social responsibility to be exercised by corporations in order increase economic welfare. The economic system would automatically result in wealth maximization and desirable social goals according to Richard Posner (1981,1985). Indeed, Posner suggests that those who accumulate greater wealth in such a system are socially very worthy because they are likely to have accumulated more economic exchanges and economic exchange benefits all parties to the transaction. From this point of view, accumulation of wealth is an indicator of social worthiness, provided that the wealth is obtained legally in a competitive economic environment.

Given this perspective, those managers of corporations who use the funds of their company for charitable purposes (at the expense of profit) are not maximizing the wealth of shareholders. It is an action that can only be considered desirable if shareholders (the principals) condone the actions of their agents (the business managers). Given the separation of ownership and management, it is possible that the managers of public companies in making charitable donations are acting not in their own self-interest. They may obtain a ‘warm glow-effect’ and personal social approval from using the company’s funds in a charitable manner.

This raises the question of where does the social responsibility of a corporation start and end. It could be argued that a corporation has a particular duty of care and social responsibility in relation to those economic agreements, exchanges and economic activities in which it is directly involved but that it has no social obligation beyond that. Furthermore, fulfilling social obligations in relation to activities in which a corporation is directly involved can be important for sustaining its profitability and on

macro-scale, vital for the economical operation of market systems. Let us consider some of the different business contexts in which this is so. It is important for a corporation too be trustworthy and conscientious in its economic activities because this influences its reputation and goodwill and its capacity for sustaining business.

4.2 Business cooperation; alliances; joint ventures.

Business cooperation or joint ventures can often result in mutual gains for the corporations involved (Tisdell, 1966, Ch.13). Whether or not such alliances form and least depends upon how trustworthy the partners are (Tisdell, 2008). It is important in such arrangements that all parties display social responsibility to one another, otherwise the joint venture will fail and may threaten the continuing existence of the corporations involved. In this case, social responsibility of the parties is required to ensure that their collective interests are met. The actions involved are not charitable ones as such.

4.3 Contracts and business agreements

The efficient operation of the market system requires that those who enter into contracts or business agreements endeavour to fulfil these in good faith. This requires compliance with the written agreement as well as the spirit of the agreement. As pointed out by Williamson (1975), most contracts are incomplete but for the incomplete part there are customary expectations about what is required for their fulfilment. It often pays a company to establish a good reputation in fulfilling its contracts. This increases the confidence of buyers of its goods and services; it can increase the size of its market and increase the prospects for the survival of the corporation. On the other hand, a tainted reputation in this regard does not augur well for the future of a corporation, particularly if the business relies on its demand or repeated sales to the same customers. Customers will not remain loyal in such a case to the corporation.

4.4 Sale of goods

To some extent the social responsibility issue surrounding the sale of goods overlaps with the previous case. The goods sold should comply with the description specified by the seller and be able to fulfil the purpose for which they are reasonably intended. Furthermore, there may be a duty of care in the part of the seller to warn the buyer of any risks associated with the use of the good.

A corporation that is a reliable supplier of goods and which is able to convince buyers of this is likely to have the demand for its goods maintained or expanded and this can add to its own sustainability. For example, a company may give the buyer his/her money back if not completely satisfied or provide solid warranties on products sold.

This can overcome the problem of adverse selection in a market (Akerlof, 1970). Adverse selection can arise when buyers have less knowledge of products than their sellers. When this occurs it may be difficult or impossible for buyers to distinguish between sellers selling defective or inferior products and those selling reliable or superior products. A consequence of this can be that either only inferior goods are sold in the market (the bad suppliers drive out the good) or the whole market collapses. Thus buyers are not able to get the products they want and suppliers also suffer (Akerlof, 1970; Varian, 1987, Ch.35; Tisdell and Hartley, Ch.6). The businesses of all suppliers may become unsustainable. On the other hand, if suppliers had been trustworthy in their sales, these problems would have been avoided.

4.5 Social responsibility towards employees

Another relatively direct way in which a corporation can display social responsibility is towards its employees. For example, it can make sure that the at work health and safety issues of its employees are addressed and that some consideration is given to their family obligations. Measures to improve the general health and welfare of employees might also be considered. Those employed by a corporation are its human capital. Measures to enhance this capital and increase on-the-job satisfaction of employees can up to a point, add to the economic viability of a corporation. This can be particularly important in relation to employers with skills that are relatively

specific to the needs of the corporation. When such skilled employees are lost, they are often difficult and costly to replace.

Once again, a corporation can display social responsibility by not standing down employees during a temporary lull in business. Up to a point, this can also be a profitable strategy taking into account its likely positive impact on the motivation of employees and the market transaction costs involved in replacing former employees when business conditions improve.

The above considerations indicate that when a corporation displays social responsibility in relation to those economic activities for which it is directly responsible, in many cases, this is also a profitable course of action. The action may be motivated by the desire to increase the corporation's profitability and economic viability rather than purely by charity.

5. Environmental Responsibility and Corporate Sustainability

5.1 Types of environmentally friendly behaviour that can be profitable for a corporation.

Some types of environmentally friendly behaviour can be profitable for a corporation but not all. When the environmental effects are external to a firm and of no consequence for the demand for its products, the environmentally friendly behaviour by a corporation can endanger its economic viability but is less likely to do so if competitive corporations are required by the government to operate also in an environmentally friendly manner.

In discussing this matter, it is important to distinguish between the workplace environment and the wider environment. The effects of the workplace environment are internal to the firm because it affects the welfare of its employees. As already discussed, it can be profitable to a corporation to create a healthy, safe and appealing workplace environment for its employees.

Where the corporation is operating in a local community and is the mainstay of employment in that community, it may also be profitable for the corporation to

control any adverse environmental spillovers from its operation on the local community. This is because these spillovers will adversely affect the quality of their employees and their family obligations, and the quality and availability of potential employees if employees are largely drawn from the local community. In cases such as this, the spillovers from the company's operations are only partial externalities.

In some communities, there is a specific demand amongst segments of the population for products that are 'green'. This includes products that are produced organically, commodities the production of which respects animal rights (for example, free range production of eggs), wooden products that do not rely on the harvesting of virgin forests, products the supply of which is associated with carbon offsets and so on. The purchase of some products may also be associated with the contributions of the corporation to the support of 'worthy' causes such as donations of the Mainland Cheese Company to the Yellow-eyed Penguin Trust in New Zealand for the conservation of the yellow-eyed penguin. Similarly, the purchase of other products may be associated with donations by the corporations selling them to bodies such as the WWF, the Worldwide Fund for Nature. These may all involve profitable business strategies because they tap into particular latent demands or add to the demand for existing products.

A particular problem with 'green' products is their certification. There is scope for cheating because of the asymmetry of information that exists between buyers and sellers. To overcome this, a number of corporations rely on certification of their products by internationally respected and reputable organizations. Such organizations can include non-government organizations, the International Standards Office and government organizations which certify the authenticity of the claims made. Without such certification, it may be difficult to tap specialized markets for 'green' products.

Asymmetry of information between sellers and buyers is a particular problem with 'green' products because buyers have no simple and low cost way of checking environmental claims made by sellers. Some airline companies for example claim that they provide carbon offsets. But the offsets may only be partial and travellers would find it difficult or impossible to check the extent of the offsets. Similarly, some suppliers of electricity claim to supply customers who wish to pay for it with 'green'

energy or a percentage of it (say 25 per cent) supplied from green sources. But how can the buyer be sure of the claim made? Even some beer and wine producers claim that their production involves low or zero carbon emissions. For example, Cascade's Green Tasmanian lager is advertised as involving 100 per cent carbon offsets (*G: The Green Lifestyle Magazine*, Issue 7, April, 2008, p.2). Not to be outdone, Coopers Brewery advertises that it produces a big beer with a tiny footprint and that "we [Coopers] take every step possible to ensure our beers have the least impact on the environment" (*G: The Green Lifestyle Magazine*, Issue 7, April, 2008, p.74).

Given asymmetry of information between buyers and sellers considerable scope exists for what has been described as 'greenwashing'. This has resulted in government regulation in many countries to control greenwashing. For example, the Australian Competition and Consumer Commission (ACCC) has recently issued guidelines on green marketing and the law (Australian Competition and Consumer Commission, 2008).

5.2 Often socially desirable behaviour involving the environment will only be undertaken if government regulation applies

There are often situations in which business corporations cannot undertake desirable environmental actions unless their competitors also do so. Otherwise they risk becoming insolvent. Usually, it does not pay a business to lobby its competitors to adopt environmentally friendly actions. But if it does do this and they agree, the corporation has no way of enforcing the agreement and each competitor has an economic incentive to renege on it. In most situations of this type the stable Nash equilibrium is one in which none of the partners keep to the agreement – it has the attributes of a prisoners' dilemma problem.

However, the business corporation may find that in these types of situations where the economic benefits from environmentally friendly behaviours are entirely external to the firm that it can survive if the government regulates the environmental behaviour of all organizations. This is because in a market system, the government regulation of environmental spillovers from an industry usually raises the price of the product produced by the industry and this makes it easier for existing firms to survive compared to a situation in which the price of the product remains unaltered.

This is illustrated by the situation depicted in Figure 3. Suppose that two techniques of production can be used in an industry and that the one with lower private cost (Technique 1) gives rise to serious adverse externalities that makes the social cost of its use larger than that of the technique with the higher private costs (Technique 2). In Figure 3, the curve identified by $LRAC_1$ represents the long-run (private) average of production of a corporation using technique one and the curve marked $LRMC_1$ is also corresponding long-run marginal cost curve. Similarly, the curves marked $LRAC_2$ and $LRMC_2$ represent the corresponding (private) relevant cost curve of the firm when technique two is used. In the absence of government intervention, the market equilibrium price of the product is P_1 but this is assumed to rise to P_2 if the government decrees that only technique two can be used. Assuming a normal demand curve for product X, the market equilibrium price of the product rises because some marginal firms in the industry are unable to make the switch from technique one to technique two and survive. Consequently, industry supply of product X falls and its market price rises.

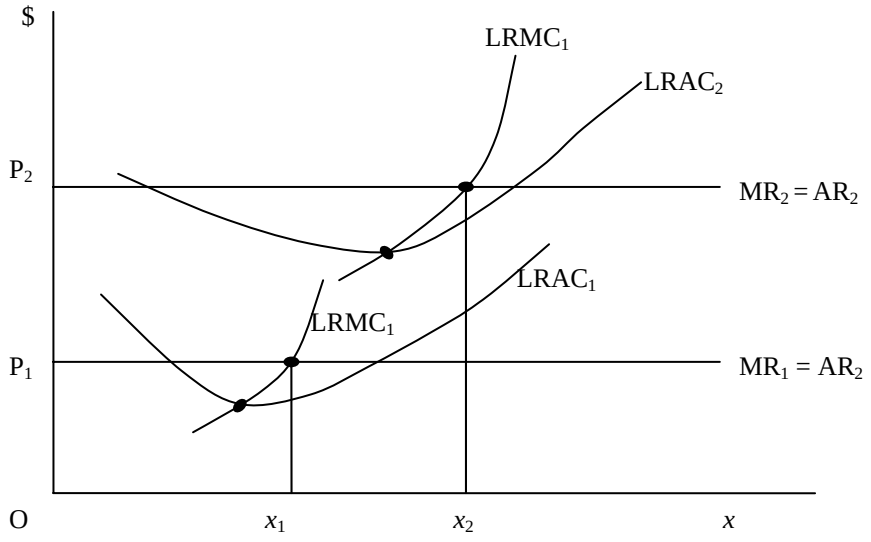

Figure 3: An illustration of a case where a business corporation is unable to adopt an environmentally friendly technique of production unless there is government intervention to control the behaviour of all market competitors.

In the absence of government intervention, the market price of product X is P_1. In these circumstances, the corporation facing the situation illustrated in Figure 3 is unable to adopt the environmentally friendly technique and survive. It is bound to make a loss if it does. It adopts technique one and maximizes its profit by producing x_1 units of the product per unit of time. However, if all firms in the industry are required to adopt technique two, the market price of the product rises to P_2 for the reasons already outlined. Consequently, it can make a profit when forced to adopt technique two. It does this by producing an output of X equivalent to x_2 per period of time. Nevertheless, some firms in the industry do fall by the wayside. These are the marginal ones that are unable to make a profit when they are forced to use technique two, the most environmentally friendly technique of those available.

Environmental regulation is not costless to the industry on which it is imposed. If the benefits from the regulations are entirely external to the industry, then given normally sloped demand and supply curves, such regulation can be expected to result in a fall in producers' surplus as well as a fall in consumers'(or buyers') surplus obtained from the product. As a result of such regulation, marginal firms in the industry may no longer find it profitable to continue operating.

The situation is illustrated in Figure 4. There AD represents the aggregate demand for product X and BS is the supply curve for it in the absence of government environmental regulation. After government regulation, the private supply curve (marginal cost) shifts up as shown by line CF. Consequently, the market equilibrium for X shifts from E_1 to E_2, industry supply falls from X_2 to X_1 and the price of the product rises from OG to OH. Consequently, consumers' surplus falls from an amount equivalent to the area of triangle AGE_1 to that equivalent to the area of AHE_2 and producers' surplus falls from an amount equivalent to the area of triangle BE_1G to an amount equivalent to the area of triangle CE_2H.

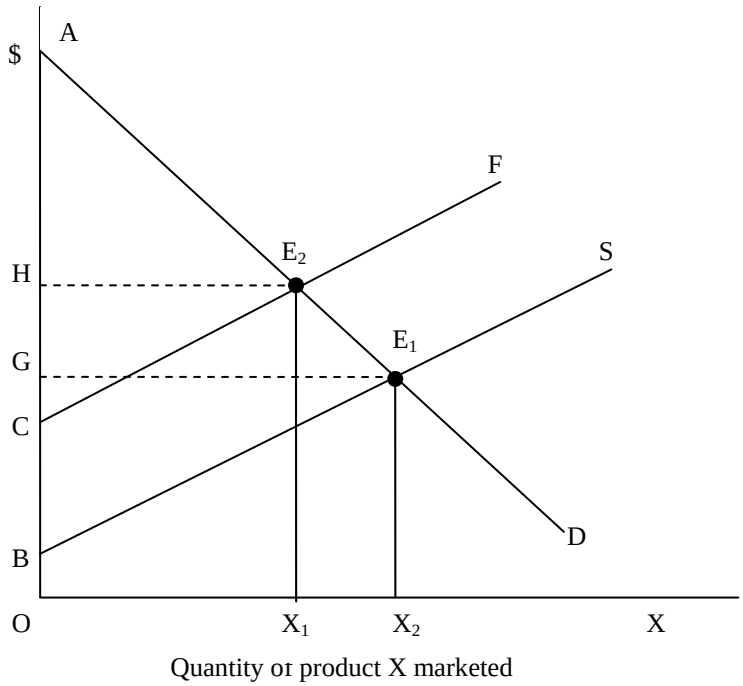

Figure 4: An illustration of a case in which both consumers and producers of a product X suffer an economic loss as a result of regulations designed to make its production more environmentally acceptable.

Note that given that the environmental benefits of regulation of environmental behaviour by producers in an industry are external to the industry, both producers and consumers of the product involved normally suffer an economic loss. The mere fact that the regulations are imposed on suppliers does not mean that they pay fully for the cost of these regulations. Due to market forces, some of these extra costs will be passed on to consumers by way of increased prices. Therefore, to some extent consumers of regulated products also pay for the costs of regulation. The adage that the producer should pay is based upon a failure to understand how the market system works. In any case, it does not seem unreasonable that consumers of products with adverse environmental consequences should be forced to pay to some extent for the adverse externalities that their demands generate.

It is only in the case where the supply curve of a product is perfectly elastic that the cost burden of environmental regulation falls completely on suppliers. On the other hand, if the demand curve for the product involved is perfectly inelastic, the cost incidence of this regulation falls completely on buyers. Most markets involve

intermediate situations and therefore, the incidence of the cost burden of environmental regulation falls partially on sellers and partially on buyers.

Note that the reduction in supply of X which occurs as a result of environmental regulation could be achieved by the exodus of marginal firms from the industry or by a reduction in the quantity supplied of firms remaining in the industry or by a combination of both.

5.3 Regulation of spillovers that provide a benefit to the industry itself

In the above analysis, it is supposed that all the social benefits from regulation of an industry are obtained outside the industry itself. However, this is not always so. The environmental regulation could control production spillovers which primarily impact negatively on the productivity of the industry itself. Or, the regulation may benefit consumers of the product subject to environmental control. This could be so for example, when the use of a particular pesticides is banned in order to improve food quality. In such circumstances, the demand curve for the product may move upwards and it is even possible for the private supply curve to move downwards after environmental regulation. This can result in a win-win situation in which both consumers' surplus and producers' surplus for the regulated industry rise. Despite the win-win possibility, this favourable result is unlikely to occur without government regulation because of the conflict between the pursuit of individual self-interest and collective interest as in the prisoners' dilemma-type of problem.

Of course, there may also be situations in which the market demand curve moves upward after environmental regulation but not by enough to offset a rise in the extra regulation costs experienced by suppliers. Hence, both consumers' surplus and producers' surplus in the industry still falls, but by less than otherwise. A similar situation arises when there are some spillover benefits to suppliers as a result of the environmental regulation but the benefits to suppliers are not enough to prevent the aggregate supply curve for the industry from rising.

5.4 The sustainability of business is affected by the way in which governments impose environmental regulations.

In some circumstances, government regulation of environmental spillovers does not adversely affect businesses as illustrated above for cases in which an industry obtains a net benefit from this. Alternatively, if suppliers are given a sufficient subsidy by the government to comply with environmental regulations, they may suffer no adverse economic consequences. Subsidies for environmental compliance seem to be rare but do occur. For example, the reformed Common Agricultural Policy of the European Union subsidizes farmers to comply with environmental regulations (Tisdell and Hartley, 2008, Ch.4). More often charges, fees or taxes are imposed by government for environmental use. These usually have adverse economic consequences for corporations subject to such fees and may result in some corporations becoming unsustainable. Some of the varied methods available to governments to regulate environmental use are analysed in Tisdell (2005, Section 3.3).

Systems of tradeable pollution or environmental use rights have increased in popularity as a means of regulating the use of the environment (Tisdell, 2005, Ch.3). If when such schemes commence those in the industry have to purchase these rights from the government, this is likely to result in a number of marginal firms becoming insolvent. If, on the other hand, permits for environmental use are initially allocated free of charge to suppliers (a process sometimes described as grandfathering) to provide them with rights equal to their current use of the environment and these entitlements are then gradually reduced (or held at current levels), this will be more favourable to the sustainability of existing firms than the approach just outlined. It provides existing firms with an asset which can be used as a collateral for loans. Furthermore, it allows them time to adjust their business operations if their entitlements are to be reduced gradually. Australia in introducing its policies to reduce carbon emissions may follow such a course. Such an approach tends to improve the political acceptability of environmental control policies and avoids the transfer of income from business corporations to the government.

Nevertheless, a balance needs to be struck between the property rights companies are given in environmental use and government flexibility to alter these rights. Getting the balance right is important for ensuring a reasonable degree of certainty to business

without locking the government into a rigid position in relation to the level of allowable pollution emissions (Tisdell, 2003, Chs. 17-18).

6. Discussion

The above raises the issue of whether public corporations are likely to be less or more socially responsible than single proprietor firms or partnerships. This is a difficult question to answer. It can, however, be observed that there are a number of factors that may limit the social responsibility of corporations.

First, responsibility for the decisions of such corporations tends to be divided. In large corporations, the influence of individual shareholders of the company's decision tends to be nominal. Furthermore, many of the decisions of the company are made by managerial *teams* and this once again results in divided responsibility (Tisdell, 1990, Ch. 2).

Second, the operations of a company tend to be spread widely from a geographical point of view. Few if any of its principal actors may live in some of the localities where the company operates. Therefore, a corporation is likely to be less subject to local social pressure than firms that are single proprietor ones or partnerships. The individuals involved in the latter often live in the community where their businesses operate and therefore, are more subject to local social pressures.

Finally, in a market system investors may still invest in businesses that pursue anti-social policies if they are profitable. They may argue that others will do so if they do not. Therefore, why should they not profit? For example, many corporations continue to promote the sale of tobacco products despite their adverse health consequences. They have become particularly active in less developed nations in doing this. Therefore, anti-social policies continue to be pursued by such corporations. Similar issues arise with the sale of fast foods, the targeting of minors for the sale of 'junk' food, and the use of advertising designed to place peer pressure on vulnerable groups to consume products contrary to their own self interest. Similar issues can also arise when financial corporations encourage individuals to become indebted beyond their

capacity to repay, as appears to have occurred in the housing mortgage crisis in the United States which became serious in late 2007 and in 2008.

Because of the scope that exists for socially irresponsible behaviour to occur in corporations, most governments have appointed a body to oversee their operations. In Australia, this role is fulfilled by the Australian Securities and Investments Commission (ASIC). However, its role is mainly limited to ensuring that company's report their financial position accurately to their shareholders and that they no longer continue to trade when they are insolvent.

7. Concluding Comments

This contribution rejects the notion that there is a triple bottom line for the sustainability of corporation in market systems. The economic or financial viability of a corporation is the dominant factor determining the survival of an individual corporation. Particular social and environmental behaviours can only be adopted by a corporation if they are compatible with its continuing economic viability. To achieve collective sustainability goals, social action is needed. This can usually only be achieved by developing a social framework that involves state intervention in the market system to support, establish and police desirable collective rules of business behaviour. A favourable system of social capital needs to be maintained, and as economic systems evolve to be reformed and strengthened as required. The need to address effectively global environmental problems arising from greenhouse gas emissions underlines this point.

Nevertheless, corporations (given the above viewpoint) may still pursue up to a point socially desirable and environmentally friendly policies whenever these are compatible with their economic viability. In some cases, the pursuit of social goals is compatible with the company's survival but in other cases, to follow such policies can be at the expense of company profits or liquidity and could threaten the corporation's sustainability. When a company is able to earn above normal profit (as in the case of some oligopolised or monopolised industries), company managers may have some discretion in their distribution of profits due to the separation of ownership and management. They may decide to use some of their discretionary profit for charitable,

socially desirable or environmentally friendly purposes. However, the extent to which they can do this is limited by the possibility that they will be taken over by raiding firms, given the views expressed by Marris, (1964). On the other hand, some corporations are dominated by particular shareholders who may use its profits for charitable purposes, for example Bill Gates and his wife.

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